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Trade Topics.

Boiler Settings.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

BY W. H. WESTON.

As the cylindrical tubular boiler is in use to a great extent, its setting may be considered a matter for attention, and in fact it is a very important matter, much more so than has generally been conceded. The result is that a vast number of boilers are set in the poorest kind of a way, and the settings are cracking and falling to pieces; and in many of them a waste of fuel is continuous, because of the form of setting.

In the first place, many settings are put in by the most inferior workmanship. The importance of this part of a boiler plant not being realized, it has been considered that almost any mason can build a setting, when on the other hand there are very few, comparatively, who are capable of doing so. In fact there is much more skill required in building a good boiler setting than in laying the best pressed face brick in a first-class front, and no one except those who have had the best experience in boiler work should be employed on the construction of settings. Common settings are inferior in many ways; that is, they may be of bad form, improper dimensions, poor brick, poor workmanship, no allowance for expansion and contraction, improper supports for the boiler, &c.

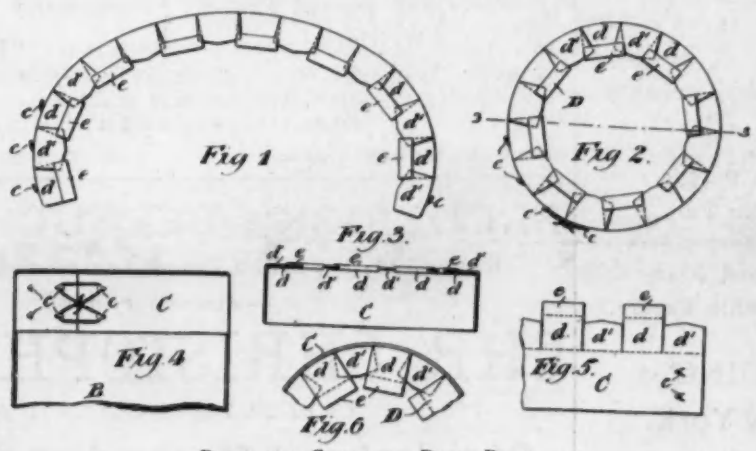
In arranging for a setting for a boiler about the first thing to consider is the grate area; that is, as to what the shape is to be to give the required surface, it not being advisable to have it too long and of a narrow width, as in such a case the back end of the grate is hard to reach and the result is that the fire at that point is not kept clear and clean and in the condition which good firing demands. Again, it is not a good plan to have a short wide grate area, because under ordinary conditions the combustion will not be as perfect.

Of course it may be claimed by many that the diameter of a common cylindrical tubular boiler fixes the dimensions of a grate, because, for example, a 72 inch boiler would have a grate width of 6 feet to correspond with the diameter of the boiler, and consequently, if 30 square feet grate area was wanted, the length would therefore be fixed at 5 feet; but this does not follow by any means, for a grate may be made either narrower or wider than the boiler shell if a builder is so disposed.

In regard to an efficient method of construction I think that a furnace width of from 8 to 10 inches in excess of the diameter of the boiler is very good practice, and if the grate is kept of the same width as the boiler it is an excellent plan to slope the side walls of the furnace outward so that at a level with the centre of the boiler they will stand away from the shell 3 to 6 inches on each side. In either of these methods the space thus formed along the sides of the boiler is such that the flame has a chance to enter and give an increased heating surface where it is very effective. At the same time there is a chance to get at this part of the setting easily and keep it perfectly clean and clear, whereas in the method of running the side walls of the furnace directly to the boiler plate there is so contracted a space at these parts that soot and ashes very soon collect and completely fill it and thus cut off much heating surface, which would be valuable if exposed to the heat of the fire. When the walls stand away from the shell there will be practically no collection nor chance for any.

The bridge wall should always be so made as to form a slope next to the grate of about 30 or 35 degrees from the perpendicular, not that this has any tendency, as claimed by some, of throwing the gases up against the boiler shell; but with such a shape it is more durable, and is therefore advisable. The face of the wall should be laid with header courses of fire brick, in fire clay in the best possible workmanship, and for 60 to 72 inch boilers the top of the wall should stand about 12 inches from the shell. The thickness of the wall is immaterial, except for securing sufficient stability and strength, and care should be taken that these are obtained. As there is ample opportunity to put in a thick wall, it is good practice to do so, and 28 or 30 inches at a level with the grate is very fair construction for a bridge wall under boilers of the size mentioned, and possibly in some instances more than 30 inches would be advisable, but under any ordinary circumstances never much less.

The size and form of the combustion chamber back of the bridge wall should be such as to allow ample space for the circulation, diffusion and mixing of the gases. As this is a very important matter it must be carefully arranged for if good economy is to be secured. The method of running brickwork under the whole back part of a boiler at a level with the top of the bridge wall, or nearly so, is not at all proper, as it gives so small a space that combustion is rendered much more imperfect than where a larger space is allowed. About the best method of construction is to lay a brick paving from a line a few inches below the top of the bridge wall down on a slope to a level with the ash pit bottom or boiler room floor, at the back end of the combustion chamber. In this way a good volume of space is obtained, and at the same time the sloping surface of the paving permits the soot and ashes to be easily and quickly hauled down to the clearing door. The space under the paving should be solidly filled with gravel and sand put in carefully and rammed to place, and the brick paving should be done in a thorough manner, the brick being preferably set on edge.



PROTECTIVE GUARD FOR PAPER ROLLS.

The cleaning door should, of course, be placed as low down as possible, to be away from contact with the flames as they pass up to the tubes, and this style of combustion chamber gives a chance to place the door at a level with the boiler room floor. In size this door should not be any larger than is absolutely necessary, and it should always be double, that is, with a lining. The inner face of the back wall of the setting should never be less than 24 inches from the end of the boiler, as less than this would form too contracted an area of opening for the gases to pass on their way to the tubes. The whole surface of the walls of furnace, combustion chamber and back end should be of fire brick laid in fire clay, and header courses should be laid every 12 to 16 inches vertically, in order to secure strength and stability of the facing, and also to form a support for the upper parts of the brickwork in case it should be necessary at any time to renew portions of it where it has been exposed to the clinkering effects of the fire. Fire brick made from plastic fire clays should be avoided, as they are of an inferior quality for the furnace lining of boiler settings. The best brick made from non-plastic fire clays are the only ones advisable to use.

As to the level of the grate, it is common to place it at about 24 inches from the circle of the boiler shell, and this is probably a very good figure for common boilers of 60 to 72 inches, as with a moderate thickness of fire it gives a good volume of space for the gases over the fire.

In the matter of supporting the boiler too much care cannot be taken, as improper construction at this point may lead to failures which would be disastrous when under steam. The best methods of holding a boiler are by links to a truss across the top of the setting or by castings riveted to the shell and which rest on rollers at one end of the boiler, a heavy plate being set in the brickwork on which the roller rests. The absence of the rollers or plates which occurs in some construction is very inferior equipment, for the expansion of the boiler is apt to start the brickwork and damage the setting if these are wanting.

All settings should be built with double walls; that is, with an air space of 2 or 3 inches through the middle. This will largely prevent damage from expansion and contraction and reduce the loss of heat by radiation. The walls should not be less than 12 inches thick at any part, the two parts of a double wall and the air space thus making at least 26 or 27 inches.

The brickwork of a setting should never go to the top of a boiler, but the setting should stop at a line just above where the top course of fire brick joins the shell, and the upper part of the boiler should be covered with a good non-conductor, as magnesia or asbestos covering. Another point about a setting is to be sure of a strong and solid stone foundation under all of the brickwork.

Sulphite Fibre Manufacture—XIV.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

BY SANFORD E. THOMPSON.

The second step in the course of the pulp in the Mitscherlich wash room under consideration is from the beaters to the knot catchers. The latter consist of revolving screens from 12 to 16 feet long and tapering from a diameter of about 3 feet at the inlet end to 4 at the outlet. The knot catchers are placed in a box having a sloping bottom and are separated from each other by partitions, so that any one may be stopped without affecting the rest.

Through the centre of each knot catcher runs an iron shaft, encased in a wooden log similar to the log for the beater, except that it need not be of so large a diameter. The log is mortised to receive a sufficient number of spokes to firmly support the framework for the wire cloth covering. Tenons are cut on the ends of the spokes, and the longitudinal strips are mortised onto them and connected to each other by mortise and tenon joint, with flat strips. The wire cloth is fastened, preferably to the under side of this framework, by brass staples and strips of wood. The cloth is a quarter inch mesh brass wire cloth and the wire is not smaller than No. 16. A larger wire than this is more economical, as it will last much longer. The larger end of the knot catcher is entirely open, and the smaller end is also open, but is provided with a circular lip about 3 inches high to prevent the stock from backing out. The stock enters through a pipe or trough at this small end just below the log shaft and flows toward the larger end, the quantity being regulated in such a way that the good pulp runs through the wire cloth into the box below, while the knots and coarse pieces fall out at the larger end.

Absolutely necessary adjuncts to the knot catcher are the spray pipes. There must not be less than three of these running the entire length of each knot catcher, and placed directly over it as close to the wire as possible. Each pipe is 2 or 2½ inches in diameter, and is pierced with a single or double row of holes, and supplied with water under good pressure. The end of each pipe is closed by a plug or cap, which may be removed for cleaning. A large amount of water is essential in order to make the knot catchers work satisfactorily. If plenty of water is not used the pulp will clog and fill up the cylinder. In one 20 ton mill the quantity of water used in them, as found by actual measurement, was about 2,000 gallons per minute. For 20 tons of pulp in twenty-four hours about five knot catchers are necessary. The best speed is sixteen revolutions per minute. Each knot catcher requires about 2 horse power.

Some mills run the stock through coarse screens after it leaves the knot catchers. These take out the small knots which have gone through the wire cloth of the knot catcher, and also remove the coarser shives. The fibres at this stage are not thoroughly separated from each other, so that the stock is liable to mat on the plates, and much good stock may have to be removed with the screening.

The washing engines come next; but it is necessary to remove a part of the water before running the stock into the engines. For this purpose some form of hair screens is used. In some mills the hair screens consist of cylinder washers similar to the washers of an engine, placed in boxes with sides which come nearly up to the shaft. The stock flows in behind these washers, is carried under them by their revolution, and flows out at a little lower level in front, the water passing away through the end of the washer in the customary manner. In other mills the stock is made to flow into one end of the revolving screen and out at the other, the water running out through the wire cloth into the box below.

A style of hair screen which will remove satisfactorily a much larger amount of water than either of these is used in two or three of the Mitscherlich mills. This screen consists of an octagonal framework on a log shaft similar to that described as used for the beaters and knot catchers. The wire cloth, sometimes 40 mesh, and sometimes as fine as 60, is fastened to small frames not over 18 inches long. These frames are kept on hand in duplicate and as soon as there is a break in the wire cloth the frame in which it occurs is replaced by a fresh one. Sometimes two coverings of wire are used. If the first is made of very coarse cloth, say of a quarter of an inch mesh, it is an effective protection for the fine wire, and prevents it from breaking until the brass is rotten.

The coarse cloth is best fastened to the small frames by brass strips about three-eighths of an inch long, the prongs of which are just far enough apart to receive a single wire. The fine cloth may be put on very tightly by rabbetting a square quarter inch groove all around the frame in its face and providing strips of soft wood slightly smaller than this rabbet to fit in to it over the wire cloth.

The large frame upon which these small ones are fastened may be either of the same diameter at both ends or larger at one end than at the other. It is placed in a wooden box with a V-shaped bottom sloped so that the stock will readily flow toward the outlet end. The screen is usually 10 or 12 feet long and about 3½ feet in diameter.

The end nearest to the inlet is closed with a tight head; the other end is open to allow the water to run off and is provided with a stuffing ring, so that none of the stock will flow off with the water. The stock enters the box through an opening a little above the centre of the shaft and flows lengthwise of and under the revolving screen to the other end of the box, the water running through the wire cloth into the interior of the cylinder and out at the open end. The amount of water to be left in the stock is regulated by the level of the outlet. If it is desired to run the stock very thick, the gate over which the stock flows is raised until it is only little below the centre of the shaft—that is, until the surface of the stock in the box is nearly up to the centre of the cylinder. By lowering the gate the pulp may be made as thin as desired. By thickening the stock in this way much less washing engine capacity is required to thoroughly wash the pulp. A single hair screen of the size mentioned will remove from 350 to 600 gallons of water per minute, the capacity varying with the size of the wire cloth and the quantity and condition of the stock. The best speed is ten revolutions per minute. One hair screen requires about 2 horse power.

After passing the washers, water is again mixed with the stock to thin it out for the sand settlers. In one of the Mitscherlich mills these sand settlers are 8 feet wide by 2 feet high and are about 300 feet in length. Some authorities claim that the stock should not be jordaned until after it passes the sand settlers, in order that the coarsest shives and dark-colored heavy particles may settle out. Others say that the Jordans separate from the pulp particles of lime and other fine matter which can be removed only by running through sand settlers after jordaning. One or two mills run the stock through one set of sand settlers, then through the Jordans, and afterward through a second set of sand settlers. In this way the coarse particles and any pieces of knots are allowed to settle out before the stock reaches the Jordans, while the lime and smaller particles may settle out afterward. Before passing through the Jordans a part of the water has to be taken out by hair screens, but the same water is run back into the stock after it has passed through the Jordans.

The object of the Jordan engine is to separate, rather than to cut the fibres, and therefore it must not be set up too far. The condition of the fine screen and the appearance of the sheet determine this, the aim being to have the fibre as long as possible, but without shives. A single Jordan of ordinary size may be made to take from 10 to 12 tons of pulp (bone dry weight) per twenty-four hours.

The action of Mitscherlich fibre on the fine screens and machine is similar to that of any other sulphite fibre.

(To be continued.)

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Figure 1 shows one guard stretched open; Fig. 2, the same in end view in position upon the end of the roll; Fig. 3, an axial cross section; Fig. 4, a side view, showing the way the meeting ends of the

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guard are secured together; Fig. 5, an illustration of the blank from which the guards are made, and Fig. 6, a portion of a guard partly formed from such blank.

The guard, when closed and in position, as in Figs. 2, 3 and 4, forms, in a manner, a circular angle iron over the rectangular edge where the ends of the roll meet the circumferential side. The roll is indicated by B, the cylindrical portion of the guard by C, and the portion which covers the end of the roll by D. The end portion D, as clearly seen in Figs. 1, 2 and 3, is formed of sectional flaps or turned up portions, *d d'*, alternately overlying and underlying each other, the ends of the underlying portions *d* being turned up and reversed over the corners of the overlying portions *d'*, as at *e*.

In Fig. 5 the lines of folding are indicated by dotted lines in the drawings, and in Fig. 3 the manner in which the under and over lying portions lie together is clearly indicated in cross section as taken on the plane 3 3 of Fig. 2. All of the edges exposed on the under side of the guard are carefully smoothed off wherever necessary, and in this manner all danger of injuring the end of the roll is prevented.

When the guard is used for a large roll the overlying and underlying flaps or portions *d d'* slide upon each other, allowing the guard to be opened out, as in Fig. 1. Indeed, if it were necessary to use the guards for an unusually large roll two or more of them could be used conjointly. Where the meeting ends come together one end, terminating in a portion, *d'*, is thrust under the turned over end *e* of the portion, *d* which forms the other end of the guard, and the continuous cylindrical portion C of the guard is overlapped to correspond, as in Fig. 4. The metal of this cylindrical portion C is stamped up into the hook shaped projections *c*, which are used to lace the meeting ends together after they are put in place upon the ends of the roll, as clearly shown in Fig. 4.

Where the guard is to be used with a roll much smaller than it is designed for new hooks may be readily formed by striking up the metal in the same manner and the guard may be overlapped and laced as before.

Correspondence.

GREAT BRITAIN.

[FROM OUR REGULAR CORRESPONDENT.]

LONDON OFFICE PAPER TRADE JOURNAL, 1 MITRE COURT, FLEET ST., E. C., LONDON, England, July 27, 1895.

Perhaps never before was there such a quiet general election in England. An election is always calculated to interfere with trade; but if it has done so this time it is not to any great extent. As a matter of fact, the explanation is not hard to seek. All of the suspense, and consequently the greater part of the excitement, was over almost at once. The Government had secured a majority on the second day of the elections and the only question that remained was what was to be the size of it. It will be very comfortable and we ought to be assured of strong and steady government—which is always good for trade—for the next six years or so. In the last Parliament the paper trade had four members, all Radicals. Of these J. J. Colman has retired and his seat is now occupied by a Conservative; C. P. Huntington, of the great paper making and paper staining firms of Potters, of Darwen, has lost his seat: Albert Spicer goes back with a greatly diminished majority; and Thomas Owens' fate at the time of writing these lines is undecided. It is considered certain, however, that he will be re-elected. However, the paper trade is more strongly represented in this Parliament than in the last. A co-director of Thomas Owens, Mr. Perks, goes back with him to the House and we have actually a Conservative member in the person of Sir Benjamin Stone, of Smith, Stone & Knight, Limited, who own three large mills at Birmingham. Sir John Long, who now sits for Dundee, is also I believe connected with the paper making industry in the North. In addition to these gentlemen the paper trade is also sure of support in any of its parliamentary battles from W. F. Galloway, of the well-known Manchester boiler firm; James Kenyon, one of the Bury felt makers who almost monopolize the supply to the paper trade, and Sir John Brunner, of the Northwich alkali firm.

Col. E. H. Haskell, of Boston, has been having a little chat with Mr. Stonhill on the subject of American news. The colonel believes that English consumers prefer American news if they can buy it at the right price, and I can vouch for it at any rate that he is right to a great extent, if not all the way. Some English users most certainly do prefer the American article when they can buy it at prices which compare well with the home product. Just at present the colonel thinks that it is hopeless to compete in England, as the English mills are said to be selling at 2 cents per pound. The colonel seems to think that this would stop trade, but I heard quite recently of a very substantial arrival of American news at an English port.

I note that the Scandinavian Association of Wood Pulp Makers offers a premium of 1,000 kroner, say $260, for the best answer to a question which is becoming grave in Scandinavia—that is: "How is the pulp flour running out into the rivers to be recovered and utilized?" The premium will be paid only in case the expedients proposed shall prove practicable, and the right to patent the idea will be with the inventor. Answers, accompanied by illustrations, may be forwarded to the offices of the association in Gothenburg or Drammen before November 15 next. Here is a chance for an American inventor, and there are many of them over at your side who will be in a position to judge exactly what is wanted. A good *Stoff-faenger* will be a small fortune all over the paper making world. In some of the rivers in Norway the bottom of the stream for several miles is completely covered with pulp flour from the mills, and not only is this a woful waste but it is seriously damaging the fishing.

I understand that the Kellner-Partington Company is about to put down no less than three paper machines in its mill at Borregaard.

The North of Ireland Paper Mill Company, Limited, did very badly last year, and in the face of its accounts, which show a heavy loss on the year's trading, it may well complain that the Irish press gives it very little support. This is the biggest mill in Ireland, and it looks very much as if the industry in the Emerald Isle was in a desperately bad condition.

In a recent letter I explained the position that our Paper Mill Workers' Union takes up. Three resolutions which have received the approval of the workers will be put before the General Congress of Trades Unions shortly to be held at Cardiff. They are worth reproducing, as they contain the whole of the policy of the workers in our industry. They are as follows:

1. "That this congress, in fulfillment of resolutions adopted at previous congresses condemning the purchase of sweated goods, strongly recommends all trade unionists and the public generally to only purchase newspapers, magazines, &c., which have the words 'Printed by trade union labor on paper made in the United Kingdom' printed in plain letters beside printer's address at foot of last page. That we further recommend all trades unions, trades councils, co-operative societies, &c., before purchasing their paper for printing, &c., to demand a guarantee that such paper has been made under fair conditions and is of British or Irish manufacture."

2. "That this Congress, in order to make operative the 'fair' wage and 'fair' hours resolution, adopted by the House of Commons, February 13, 1891, and as a partial remedy for the continued depression in the paper and other trades and want of employment prevailing, hereby calls upon the Government to insert a clause in all Government contracts, providing that the whole of the paper and other goods supplied (if obtainable in the United Kingdom) shall be of British or Irish manufacture or production, and instructs the Parliamentary Committee to take immediate steps for the furtherance of this object.

3. "That this Congress is of opinion that in order to prevent foreign paper being imported and palmed off—after changing the outside wrapper—as home manufacture, every sheet of foreign paper imported into this country must have a watermark, which can be seen if the sheet is held up to the light, showing the country it was made in, and every roll of foreign paper must have a similar watermark on at least every square yard. All foreign envelopes, paper bags and such like must be made of paper which originally had a similar watermark on every square yard."

John Hargreaves, of Collyhurst Paper Mills, Manchester, proposes to kill two birds with one stone in improving the method of staining or coloring and sizing pulp, and at the same time purifying the water employed. His invention enables paper manufacturers in some cases to dispense with the boiling or washing of the raw materials employed (including woolens), thus obtaining a clear and innocuous effluent. He makes an artificial ochre by mixing about equal parts of sulphate of iron and slaked lime or chloride or sulphate of lime dissolved in a sufficient quantity of water to bring it to a milky consistency. Instead of using sulphate of iron in crystals the mother liquor resulting from the process of manufacturing sulphate of iron, or other solutions containing sulphate of iron, may be used. The coloring compound thus formed is added to the stuff in the rag engine. The effect of this addition is not only to color the pulp of which paper is made, but it will also be found to answer the purpose of sizing, so that the latter process may in some cases be dispensed with, and it will also clean both the fibres of the pulp and the water, so that the effluent will be fairly pure. This is greatly facilitated by the addition of a small quantity of starch, flour or other farinaceous matter (say from about 2 per cent. upward) to the stuff.

An innovation in yachting circles is now being talked of—nothing less than sails made of compressed paper, the sheets being cemented and riveted together in such a way as to form a smooth and strong seam. I believe this is an American idea, but a nautical journal here describes the manufacture. The first process consists in preparing the pulp in the regular way, to a ton of which is added 1 pound of bichromate of potash, 25 pounds of glue, 32 pounds of alum, 1½ pounds of soluble glass, and 40 pounds of prime tallow, these ingredients being thoroughly mixed with the pulp. Next, the pulp is made into sheets by regular paper making machinery, and two sheets are pressed together with a glutinous compound between, so as to retain the pieces firmly, making the whole practically homogeneous. The next operation compresses the paper from a thick, sticky sheet to a very thin, tough one. The now solid sheet is run through a bath of sulphuric acid to which 10 per cent. of distilled water has been added, from which it emerges to pass between glass rollers, then through a bath of ammonia, then clear water, and finally through felt rollers, after which it is dried and polished between heated metal cylinders. The paper resulting from this process is in sheets of ordinary width and thickness of cotton duck; it is elastic, air-tight, durable, light, and possessed of other needed qualifications to make it available for light sail making.

As for the bicycle tires made of paper I have heard a good deal about them, but I have not come across them yet. They are said to be made on the compartment plan, that is to say, in a series of chambers each independent of the other, so that in case of puncture only a section of the tire will collapse, and the rider will be able to continue his journey. The tires are strong enough for carriages and the builders are said to have their eyes on them.

I had the pleasure of a visit from Robert C. McQuillen, of the A. Storrs & Bement Company, of Boston, Mass. Mr. McQuillen tells me that he has had a good time in England, and he seems to have seen a big piece of it. He had also visited the Continent, and, wonderful to relate, actually found that he preferred London to Paris.

ALFA.

FOX RIVER VALLEY.

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., August 13, 1895.

The order of the War Department in respect to the use of water for power purposes on this river was made public last Saturday. It was issued under the authority of the Assistant Secretary, General Doe, and is the result of his investigations while in this valley. According to the terms of the order no water will be allowed to be used for power purposes until the level of Lake Winnebago rises to the crest of the Menasha dam. The water is now standing at a point about 15 inches below the crest of that dam, and as it has been rising very slowly for the past few weeks, even when none has been used for manufacturing purposes, it is impossible to tell when the required height will be reached. It can scarcely be expected to get there until October, unless the inflow into the lake should be increased above what it seems to be now.

There is something further, however, about the order which will commend itself to the mill men. General Doe states that it will hereafter be the policy of the Government not to allow the sluice gates in the Menasha dam to be opened in times of high water until the level rises to a point above 18 inches over the crest of the dam. It has previously been the custom of the Government to open the sluices in the spring and fall when the water reached the crest of the dam, so that no surplus water was stored in the lake. The manufacturers have heretofore fought against this practice without avail. In times of high water in the future, therefore, a considerable amount of water will be preserved which has been permitted to run to waste in the past.

The order, as given in the special dispatches from Washington, and the comments of Gen. Doe are of sufficient importance to be given in detail. They are as follows:

"Assistant Secretary of War Doe, who has charge of the Fox River works controversy so far as the War Department is concerned, has issued an order based upon the results of the measurements by the engineers of the inflow and outflow of Lake Winnebago, and that order will prevent the drawing of water from the Government canals by the water power mills on the Lower Fox. In fact, the order is more sweeping in that it is calculated to prevent a recurrence of low water in the Fox by prohibiting further sluicing of water at the Menasha dam during freshets, unless the water rises so much as to endanger property or accumulates to exceed a flow of 18 inches above the crest of the Menasha dam.

"The report on the measurements of the inflow and outflow of Lake Winnebago was made by Major Marshall. It shows that the lake has remained stationary for more than a week past, notwithstanding no wheels of the water power mills are moving. It is shown that the inflow of the lake barely exceeds the losses by leakage, lockage and evaporation. Between July 16 and August 1 the lake rose an inch, but three-fourths of this rise was due to rainfall on July 24. The outflow of the lake is fixed at 19,500 cubic feet a minute. This General Doe says is too small an amount to be of service to the water power mills.

"The mill men at Neenah and Menasha have estimated the daily consumption of their mills at about 30,000 cubic feet a minute, more than double the outflow.

"General Doe says the water must not be allowed to become lower in the lake and canal, and that sluicing of water at Menasha shall not be permitted in the future, even during high water periods, except to prevent floods over the crest of the Menasha dam, and that there will be no more sluicing, except to keep the water within 2 feet of the crest of that dam.

"Major Marshall, in making the report, urges that no more water shall be taken

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from the lake and canal, and Gen. Doe indorses that recommendation. In doing this, the secretary says that it will be in the end better for navigation and better for the mill men. He declares that the lack of water is due to the improvidence of the water power users, who, during the winter, draw the water below the crest of the dam and hope that even with the continued consumption of water the spring rains will restore it. The general asserts that, with the water in the canal 16 inches below the crest of the dam, both navigation and the industrial interests suffer, and in approving the recommendation of the engineer that no more taking of water for hydraulic purposes shall be permitted, Gen. Doe suggests that although this is unfortunate, and presents a grave situation for the mill men, the Government of the United States is not responsible."

A good many people are impressed with the desirability of setting on foot an investigation as to the alleged manipulations of the water in the Wolf River by the loggers, so as to hold it for rafting logs instead of allowing it to come down the river as nature intended that it should. It is argued that nothing could be done to remedy the matter if it was found to be true. It would be of great importance in the future, however, to know definitely about the matter, and it is hoped that manufacturers will take hold of the project and see that the matter is looked into.

The manufacturers for years have been making efforts at different times to get the Government to allow them to put flush boards on the dams in order to get a higher head of water, which would permit them to use less water and yet obtain the same amount of power. The Government has always refused permission, however. It is said, however, that the permission desired may come as soon as the water rises, as since General Doe's visit here the Government has become impressed with the desirability of keeping the water at the highest possible stage consistent with the safety of property.

The manufacturers have not expressed their opinions very generally as yet of the recent order from the War Department. There seems to be some difference of opinion. Almost everybody is agreed, however, that it will be a long time before such a state of affairs occurs again, even if the Government does not interfere, as more care will be taken by the manufacturers themselves than in the past. Almost everybody will be equipped with steam power, so that the question of running or not running will not be absolutely dependent upon water, as has heretofore in many instances been the case.

The news mills of Wisconsin have united in their determination to eradicate some of the abuses to which the trade is subject. This action is taken as a matter of necessity instead of further advancing the price, and covers the following items: An extra price is charged on all frames ordered on paper of an extra value of $2.75 or less. They refuse to furnish iron spools free of charge on small contracts. For small shipments in lots of less than 4,000 pounds a specified extra charge is made. Light colored print paper receives very careful attention, enabling the manufacturer to reimburse himself for the extra cost of making the same. They fix a basis of weight below which they refuse to accept any orders. Every manufacturer of news print has signed this agreement. The action may meet with some opposition, but it is expected that the Eastern mills will realize the justice of this action and in their efforts for Western business will find it profitable to conform closely to these points, as contrary action on the part of any agent will be unnecessary and must meet with the hearty disapproval of his employer. This is a step in the right direction, and if our Eastern friends will sanction the effort it must meet with its deserved success, and be a valuable assistance to both manufacturer and consumer.

Quite a quantity of the machinery for the new mill of the Grand Rapids Paper and Pulp Company, at Biron, has been ordered, and the contracts for the remainder will soon be awarded. E. A. Jones, of the firm of E. D. Jones' Sons Company, was given the contract for six 1,000 pound engines. The New England pulp grinders were decided upon, and eight of them were ordered from Olin Scott. Barkers, splitters, wet machines and screens were ordered from an Appleton institution. The contract for the water wheels was given to the Leffel people. Steam boiler men are now at Biron figuring, and the paper machine representatives will be there this week. Two hundred and fifty men are at present employed upon the various kinds of construction work under way, and the job is progressing very smoothly and nicely. The west end of the dam has been completed, and the piers have been filled with rock, while work upon the main dam has begun. The engine room and finishing room will be inclosed this week. Five feet more of rock remain to be taken from the tailrace.

During a very heavy thunderstorm last week the flag pole on the mill of the Paul Paper Company, at Menasha, was struck by lightning and shivered to small fragments. The iron roof conducted the electricity away, however, without further damage.

On the afternoon of the 6th inst. the bleaching house of the Newton Paper Mills, at Sparta, was burned, the loss being about $4,000, covered by insurance. The fire originated in a pile of baled straw, and prompt work saved the main part of the mill.

The Atlas Paper Company, of this city, has just received a new digester for its fibre mill in this city; this will be used to take the place of one of the old bronze digesters, leaving the capacity of the plant the same as before. The digester came from the Pusey & Jones Company, and is the same in character as the digesters used by the Kimberly & Clark Company at Kimberly.

While testing one of the new steam engines recently put in at the mill of the Western Paper Bag Company, at Kaukauna, last week, the governor refused to operate properly and the engine ran away, bursting a cone pulley. Afterward the engine ran away again and broke the governor. This establishment will be ready to go into operation within a few days. It is the expectation of the company that the mill will be able to run even without any water power assistance at all. It has just installed three new steam engines. Three new top dryers are also being added to each of the two machines, and one of the machines is being provided with a new Marshall driving train. The boiler house has been enlarged so as to accommodate three new boilers, and one boiler has been ordered, which is expected to be sufficient for present requirements. It is a Babcox & Wilcox, the same as the other boilers used by this company.

The finishing touches are now being put on the new addition of the Thilmany Pulp and Paper Mills at Kaukauna. The addition has been constructed of solid stone in the heaviest and most substantial manner, and will accommodate the new 80 inch tissue machine which is being built by the Beloit people. The machine is expected to be delivered within a few days. The company recently added a new engine, and is now enlarging its boiler house in anticipation of the arrival of a new Indianapolis upright steam boiler, warranted to carry 150 pounds working pressure. When this boiler arrives the company will have one of the most complete mills in the matter of power to be found in the valley. It will have four machines, and the whole establishment can be operated either by steam or water power, as may suit the case. The Thilmany people are having success with their tissue paper and are now making their first carload for export.

At a meeting of the Badger Paper Company, of Kaukauna, yesterday, officers were elected for the ensuing year as follows: President, H. A. Frambach; vice-president, Joseph Vilas; treasurer, J. H. Frambach; secretary, J. Stillwell Vilas. The Badger people are running all of their paper machines except the big one, put in a few months ago, and when the new boilers which have been ordered arrive there will be power for the big machine also.

The Quinnesec Falls Company, which is practically the Badger Paper Company, is hurrying along the construction of its hotel and boarding house at the Falls, which is the first necessity to the building of the proposed mill. Men have already begun, however, to level off the mill site and get things ready for the building operations which are soon to come. It is practically decided that the mill will be built of brick.

The mill of the Kaukauna Fibre Company has been hampered for a little time on account of lack of steam making capacity, and has ordered another boiler from the Manitowoc Boiler Works, which will give it an equipment of three. It is getting ready to manufacture fibre wholly by steam power, if the necessity arises.

The mills at Marinette and Menominee were all down for several days last week on account of lack of water-power, which shows that the Fox River is not the only district which has been suffering.

N. H. Brokaw, of Kaukauna, has been somewhat under the weather of late.

FOX RIVER.

MIAMI VALLEY.

[FROM OUR REGULAR CORRESPONDENT.]

DAYTON, Ohio, August 22, 1895.

Little or no change has marked the trade of the past week. A slight movement in various branches was noticeable, but the general business situation remains unchanged.

The torrid weather has had its effect, and will continue to show its bearing in the impeded movement of trade for several weeks—at least the effect will continue that long.

That the Wisconsin handicap will prove an important factor in business in this section is acknowledged, but if present results are to be considered as a consequence thereof, the opinions of the best known tradesmen have gone astray. It seems that all sections are able to take care of their respective localities, and the misfortunes of one paper centre are not quickly redounding to the good fortune of another. It is a bad breeze which blows no one some good.

Business is shifting as usual and the paper manufacturers and their associate workers are now hunting cooler climes.

As foretold in this correspondence, the Louis Snider's Sons Company offered, through Trustee T. M. Boyd, its various mills, four in number, at public sale last Saturday. One of the mills was disposed of, viz., the Fair Grove Mill, at the low figure of $15 525. The purchaser was Henry Sohn, a well-known capitalist, who will promptly arrange to manage the mill upon liberally formed ideas. These mills were appraised at $267,000, and when under one management proved a big business property. It is needless to say that they will yet perform their function in trade work. Mr. Boyd will secure another order of sale under the former appraised values, if possible; if not, a reappraisement will take place. Those in a position to know were positive that the entire plant would not sell on one day. This was scarcely an expected possibility in view of the present cramped conditions. It is not an easy matter to dispose of $250,000 worth of paper mill property, and if any place and circumstances are favorable they would undoubtedly be so here. When the panic thunderings of 1893 fail to reverberate, a general reawakening may be confidently anticipated in the Great Miami Valley.

By way of parenthesis, it should be observed that Trustee Boyd, who has handled finances in litigation for years, and who has served as treasurer of Butler County, may possibly succeed to the editorship of the Hamilton *Democrat*, vice S. S. Rose, a late appointee to the superintendency of schools in that city.

The Dayton board of trade, for the first time in its existence, last week accorded an official welcome to an incoming manufacturing concern, the Dr. Harter Medicine Company. Dayton is a conservative city with upward of 1,500 sturdy manufactories. She has never sought a single concern by bonus, and, so far as anticipated, probably never will. She is here to stay, and will do so without the offer of flattering inducements. She needs no tonic of any kind and her substantiality will work to her benefit thusly to greater advantage than by any known method which might be judiciously applied. In the board of trade are any number of paper manufacturers and novelty men, and in the public exercises of the past week all were prominent. Some responded to toasts at a banquet, while others were "generals" and "aides" in the industrial display. Nearly all were represented, but very simply so.

That the order of the local board of health regarding canal sanitation has had a wholesome effect down the valley is evident by a similar order issued at Franklin. The canal at that point is dotted with paper concerns, and there is little doubt that the proprietors will meet sanitary requirements as freely as did their Dayton brethren. The waterway was not designed as an open sewer and there is a time when reminders must be posted. This is one of them.

Miami Valley courts are now teeming with developments of interest to the paper trade in general. One case above all, which stands paramount this week, was the comparative progress made in the suit of the Lockland National Bank *v.* C. F. Gunckel, the full text of which has previously received publication in these columns.

The issue as to the double liability of the stockholders of the Middletown Paper Company was the original one in this cause, and the evidence pertaining to that has been "in" for several months. The finding of the referee, H. H. Haines, was postponed for further evidence, and it came the past week with a rush which was overwhelming, to such an extent that a decision has been reserved in the matter and none may be expected for a full month or longer.

One point developed, wherein Ruth and George Coddington sought to make Paul J. Sorg, now of the Jacoby Paper Company, respond in the sum of $8,000, which they alleged was his share of a certain amount of "watered" stock which was added to the value of the Middletown Paper Company when it was advanced from a partnership concern to a corporation under the laws of this State, in 1883. They claim that $50,000 was added to the value for good will, trade, location, &c., and that this, not being a real thing, could not furnish a basis for stocking the new company, but that it must be contributed in cash or property. Mr. Sorg had several partners at that time who were some of the leading tradesmen of the United States, all of whom may have to respond in various sums if Mr. Sorg is compelled to meet this claim. The evidence of Mr. Sorg and others seemed to show that the value of the plant at that time was $94,000, at which sum the corporation took it.

As to the issue of present holders of preferred stock it was sought to have the court find that they are not legal and actual holders of such stock, for the reason that when they bought the same from the company there was attached to the certificates of stocks an agreement signed by the company in which it agreed to purchase or take any such stock back at and after three years from its purchase, if the holder desired. Now it is aimed to make this stock void, because of the expiration of the three years, and they demand of the company its redemption. Failing in this (owing to the failure of the company), they seek to have the court find that this is a bona fide claim against the trustee of the company, and as such is entitled to a dividend.

Next! What is it? Oh, yes, the cross petition of R. H. Overton & Son, of New York, creditors of the company. They claim that the Merchants' National Bank, of Hamilton, became the owner and holder of $30,000 worth of the preferred stock of the paper company, February, 1891, and that the bank is liable in double the amount, despite the fact that all of this stock was taken out of the bank by the paper company long before its failure. It is stated that the proof showed that the stock was acquired by the bank through Mr. Gunckel without the knowledge of any of the other officers of the bank, and that as soon as discovered they protested against the action, claiming that it was not proper or lawful for a bank to trade in such assets, as it created double liability and subjected the bank to the hazards of the business.

Bank Examiner M. Betz testified that he found this stock there in May, 1891, after it was so received in February, 1891, and that he called the attention of C. F. Gunckel, as president, to the same as an unlawful holding for the bank; that he was then and there assured by the president, who was also president of the paper company, that the stock was not really held by the bank as the legal owner, although it was so entered and shown on the bank books; that Mr. Gunckel claimed that it was held by the bank instead of a note of the paper company, the latter having already borrowed from the bank beyond its legal limit, and that this was a way of allowing the paper concern to have more money than the law allowed one of its customers to borrow.

This matter was passed at the time, as it was supposed to be temporary. Mr. Gunckel's memory was refreshed by Bank Examiner Betz's testimony and he corroborated the same. Mr. Sorg said that he had protested against the holding; others did likewise.

Without question that was very important testimony and seemed to favor the bank, but the reader can form his own conclusions. Several days of arguments brought the legal battle to a close, and, as above intimated, the decision is yet withheld.

It takes a legal microscope to follow the expert movements of lawyer-paper manufacturers of this up-to-date valley.

The Black & Clawson Company is now running ten hours a day. It reports orders increasing and prospects bright.

The Carter-Crume Paper Company's baseball players are now the champions. In the last game this week, with the National Cash Register team as adversaries, they scored the concluding victory of the series.

M. V.

BOSTON.

[FROM OUR REGULAR CORRESPONDENT.]

EASTERN OFFICE PAPER TRADE JOURNAL,
67 FEDERAL STREET,
BOSTON, August 15, 1895.

The present week brings to light nothing of important interest so far as the paper jobbing business is concerned.

Several of the prominent gentlemen identified with the proposed news paper combination were in consultation in Boston last Friday, but the results of the meeting were not discussed after adjournment, so that it was impossible to gather any information concerning it.

Low water is yet a subject of complaint, but at present it has not diminished the supply of paper to that extent which will cause any uneasiness on the part of dealers or consumers.

When the fall trade opens, however, and demand becomes active, the supply of paper on hand at the mills may be found to be rather limited, owing to the curtailment of product on account of a scarcity of water. Such a condition might lead to higher prices in some grades of paper were it not for the philanthropical nature of the paper manufacturer, who so much dislikes to advance prices.

Paper stock importers report a very quiet business, and they attribute the dullness to the lessened demands for paper making supplies, due to the fact that the daily out-

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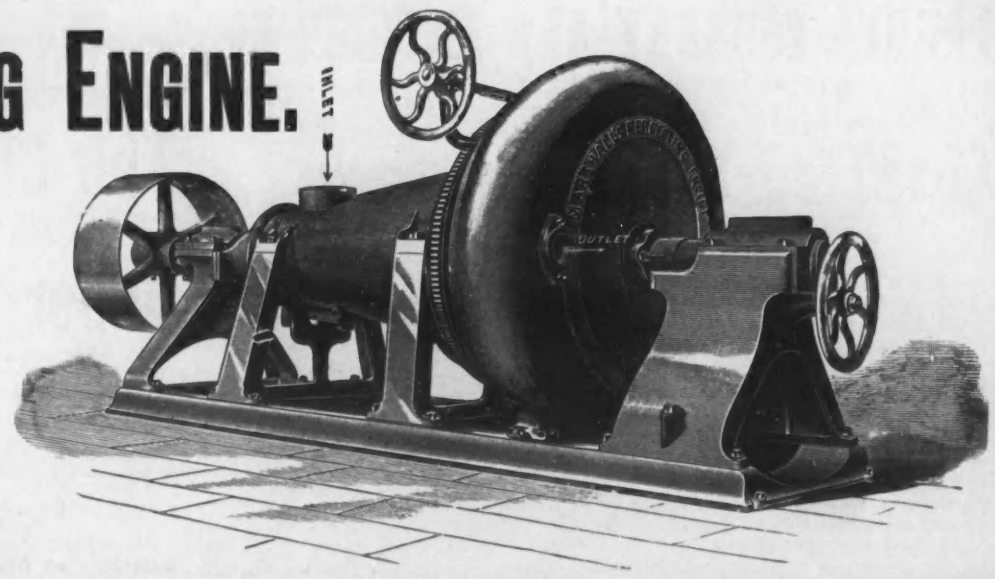

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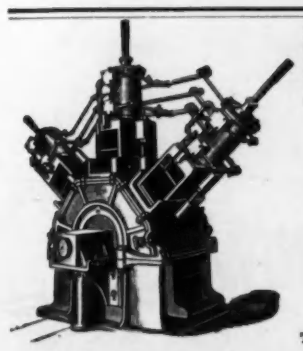

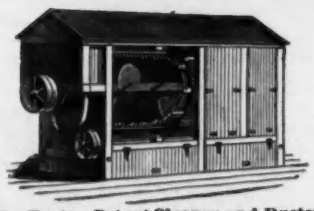

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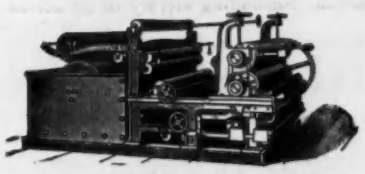

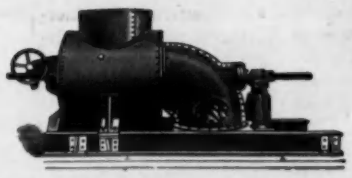

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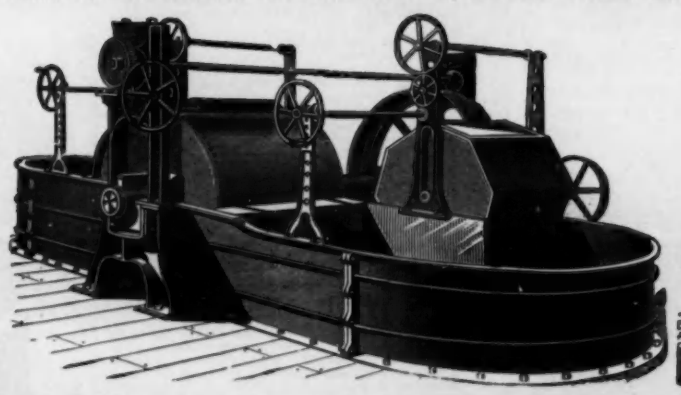

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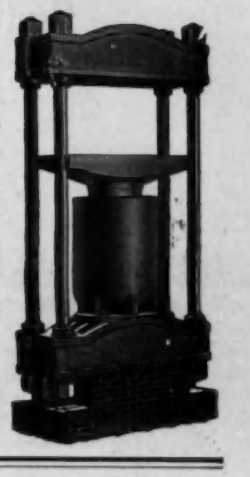

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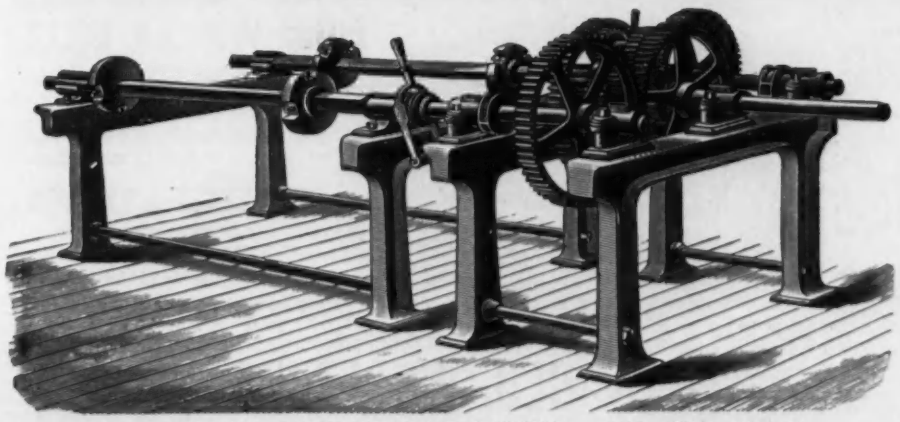
Watertown, N. Y.



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FOURDRINIER PAPER MACHINES.

LATEST DESIGNS. GREATEST RECORD OF PRODUCTION. HIGHEST DEGREE OF WORKMANSHIP. INSURING MINIMUM OF AFTER EXPENSES FOR REPAIRS.

Compensating Winders for any desired number of rolls.
Two and Three Plunger Stuff and Suction Pumps.
Hard Maple Press Rolls and Suction Box Covers,
Bronze, Rubber Covered and Chilled Iron Press Rolls,
Hydraulic Feed Pulp Grinders, Screens and Wet Machines—all of late and improved designs.

WHEN YOU WANT ANYTHING IN OUR LINE WRITE US BEFORE ORDERING ELSEWHERE.

DO NOT FORGET

That every ***New England Pulp Grinder*** ever made or sold in this country has been designed, built, and first sold by me; and I am sole owner of the right to use the name "New England" as applied to a pulp grinder, as the United States Patent Office records will show, and no other person is or has ever been interested with me in the manufacture of Pulp Machinery.

All the rights and interest of the Scott & Roberts Company and the New England Pulp Machine Company which were organized for the purpose of selling my pulp machinery were acquired by me more than four years ago, since which time many changes and improvements have been made in the New England Pulp Grinder.

I am prepared to furnish at short notice everything required for making ground wood pulp, including plans and specifications, and estimates for which I will furnish same; and erect the whole, if required, ***guaranteeing a greater production of pulp,*** with a given power and at a less cost for manufacture, than can be done by any other machines; and no pay asked until machines perform as stipulated.

Can furnish any of the leading ***Turbine Water Wheels,*** fifteen styles ***Pulp Grinders, Noiseless Screens, Wet Presses, Sawing Machines, Barkers, Splitters, Pumps, Shafting, Mortise Gears, Pulleys, &c.***

Remember you can have a ***guaranty*** of the ***cost*** of ***your mill;*** also of the ***cost per ton to manufacture the pulp.*** Liberal terms.

I have on hand ***six Pulp Grinders,*** three pockets, to grind wood 17 inches long; and ***eight Grinders,*** heavy pattern, to grind wood 24 inches long; also ***Barkers*** and ***Splitters.***

Many of the old style New England grinders can be rebuilt so as to greatly improve them.

More than **FOUR HUNDRED** ***New England Grinders*** in use.

Don't use an old superannuated machine, nor an inferior imitation, when you can buy a genuine, good Grinder at the low prices at which they are now offered.

I have on hand for prompt delivery six heavy Pulp Grinders, lately made to order, three pockets, to carry Grindstone 18 inches thick, 50 inches diameter; also eight Grinders, heavy pattern, three pockets, to carry stone 25 1-2 inches thick and 52 inches diameter. These will be sold at reduced prices and on extra favorable terms, fully guaranteed in every particular. Also on hand Barkers and Splitters.

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THE LARGEST MANUFACTURERS OF

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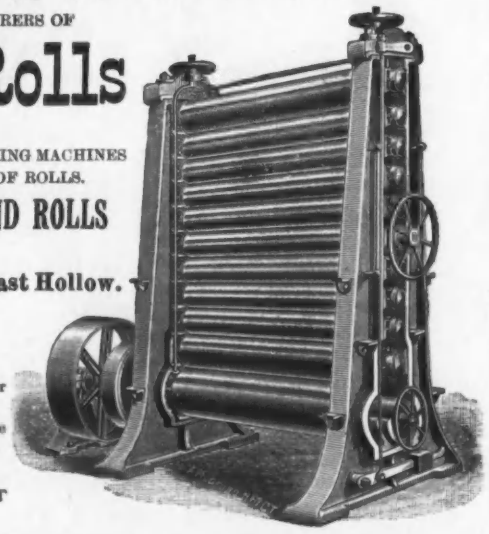
IN THE WORLD.

ALSO MANUFACTURERS OF GRINDING MACHINES FOR ALL KINDS AND SIZES OF ROLLS.

CHILLED AND DRY SAND ROLLS

FOR ALL PURPOSES.

Rolls Bored for Steam or Cast Hollow.



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Lift Rods operated by wheels above for raising any number of the rolls.

Housings so made that the rolls may be taken out endwise through frame.

OLD ROLLS RE-GROUND AT SHORT NOTICE.

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Embodying All Late Improvements.

WET MACHINES, STUFF PUMPS, WATER PUMPS,
FINISHING CUTTERS, BUNDLE CUTTERS,
&c., &c., &c.

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A Great Stride in Advance of Anything yet Produced.
Write for full information.

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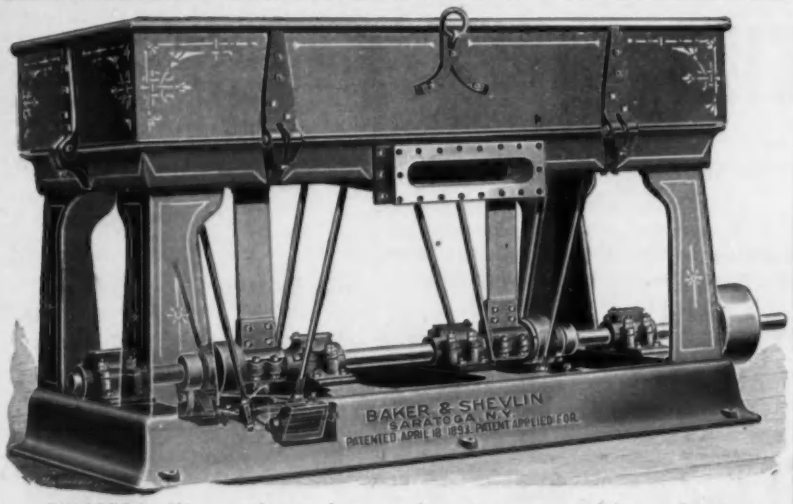

THIS illustration gives quite a correct idea of the mechanism and appearance of our **BELLOWS SCREEN,** which is the best to be found the world over.

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Coating Machinery for Lithograph, Label, Fancy, Glazed, Book and Sand Papers.

Also Cardboard Machinery. Hilbers, Staib and Waldron Patent Hanging-Up Machines. Patent Power Reeling Machines for Coated Papers and Cardboard. Embossing Machines, Paper Rolls, Polishing Machines, &c.

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CONTENTS.

INTRODUCTION.

General Laws of Chemistry; Principles of Chemical Physics; Chemical Arithmetic.

PART I.

General Chemistry.—With a short account of each element and its principal compounds; source, manufacture and properties of such compounds as are used in paper making.

PART II.

CHAPTER I.—**Cellulose.** Its chemical and physical properties, chemical relations and reactions.

CHAPTER II.—**Fibres.** Cellulose in its relations to the plant; the vegetable cell; the cell wall; changes which occur in the cell wall; lignin or incrusting matter; its chemical properties; characteristic markings of the cell wall in different fibres; characteristic cells other than fibres in different pulps. Classification of fibres: 1. Seed hairs; cotton, chemical and physical character of fibre, dimensions, analyses. 2. Bast fibres, as linen, jute, hemp, manilla, rhea, ramie, agave, sisal, sabaconia, &c.; occurrence in plant, separation of filaments; character, size, distinguishing features of filaments and ultimate fibres, analyses and chemical properties. 3. Fibres and other cells from whole stems and leaves, as straw, esparto, bamboo; measurements and characteristics of fibres, yields, analyses; characteristic cells found with fibres. 4. Wood fibres; growth of wood; cambium layer; spring and autumn wood; sap and heart wood; resins; bark and knots; analyses of woods; specific gravities; ash; fuel values; occurrence and character of all woods used for pulp making.

CHAPTER III.—**Processes for isolating Cellulose.** Rag boiling; special treatments for various fibres, as jute, straw, esparto; review of miscellaneous processes for treating wood; the water process, aqua regia, &c.; the soda process, history; preparation of liquors, boiling, washing, recovery, sources of loss; analyses of chemicals and liquors; the sulphite process, history; general principles; the different systems; liquor apparatus; preparation and analyses of liquors; digesters; linings; boiling; subsequent treatment of pulp; waste liquors; recovery. The sulphide and sulphate processes.

CHAPTER IV.—**Bleaching.** General principles; bleaching agents; bleaching powder; deterioration; analyses; preparation of bleach liquors; use in chests, engines, drainers; hot bleaching; acid bleaching; use of alum; chlorination and oxidation of fibre; washing stock; antichlors; loss in bleaching; ozone bleach; hydrogen peroxide; permanganate; sulphurous acid; special processes for various fibres.

CHAPTER V.—**Sizing and Loading.** Resin; preparation of size; free alkali; free rosin; alum; analyses of alums; free acid; basic alums; sizing power; resinate of alumina; moss; casein; wax; starch; animal sizing; preparation and use; drying; loading; analyses of clays, agalite, pearl hardening, &c.; use; retention; ash; combined water; effect of alum and starch.

CHAPTER VI.—**Coloring.** Mineral colors; vegetable and animal colors; aniline colors; chemical properties; effect of alum and traces of bleach or alkali in different colors; distinguishing tests; effect of different waters.

CHAPTER VII.—**Water and Water Supply.** Character and analyses of different waters; ground waters; surface waters; river water; artesian well water; hard and soft waters; boiler scale; effect of waters on size and colors; various systems of filtration; use of alum; softening water; self purification of streams; natural filtration; effect of storage; vegetation in ponds; crenothrix; consumption of bleach by waters.

CHAPTER VIII.—**Chemical Analysis.** Description of apparatus and methods for testing the purity and strength of all paper making chemicals, colors, &c.; common impurities and adulterants given; full description of methods of analysis for sulphite and soda liquors, bleach solution, alums, &c.

CHAPTER IX.—**Paper Testing.** Full account of the latest German methods for testing and classifying papers; determination of ash; kind of sizing; amount of sizing; free acid and chlorides; strength; proportion of ground wood; kind and condition of fibres.

CHAPTER X.—**Electro-Chemistry,** with reference to bleaching, manufacturing of pulp, manufacturing of chlorine and soda.

APPENDIX.—Metric system; tables of specific gravities; strength of solutions; list of sulphite patents, &c.

This handbook is practical, and hence will be useful to the Trade. Several hundred orders for it have already been received from various sections of the world through the advertisement which has appeared in THE PAPER TRADE JOURNAL. A copy of the book should be owned by every person interested in the subject.

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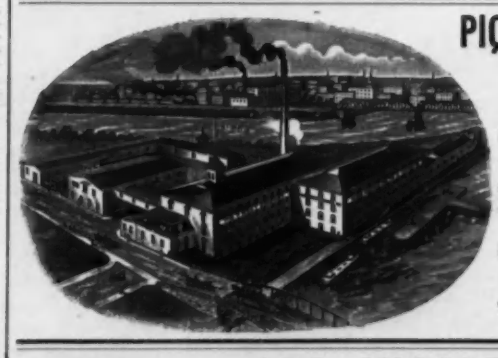

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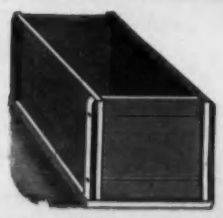
FELTS.

PRESS FELTS AND JACKETS FOR ALL KINDS OF PAPER.

Try our Special Five X Jackets; they have no equal.



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FOR PAPER MILL WORK, DRAINERS, STUFF CHESTS, ACID AND WATER TANKS, ETC.

In sending for estimates state if measurements are inside or outside and thickness of wood desired.

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Jenkins Bros. Valves.

Honestly manufactured.
Warranted as represented.
Look for Trade Mark.

.. JENKINS BROS. ..

New York. Chicago. Philadelphia. Boston.

put of mills is so curtailed because of low water.

Wood pulp holds up in price and people do say that sulphite fibre is firmer.

To-morrow at noon the Boston Paper Trade Association will go to Marblehead Neck for its summer outing. A very pleasant time is anticipated, and a party of fifty or more will join in the trip. So many of the trade are away on vacation or are located with their families at out of town resorts, where they spend the nights, that the attendance on this particular occasion will not be so large as was hoped for.

W. H. Claflin is at Jamestown, R. I., with his family, and will not return to town before September 1.

John Carter's family is located at Duxbury, Mass., this summer, and Mr. Carter spends his nights there—his days at his Federal street paper house.

Fred Upham, with Train, Smith & Co., will take his family to Kennebunkport, Me., this week, where he will remain for a couple of weeks. Fred says that he needs a rest.

Harry Franks, of Sydney, Australia, representing W. H. Parsons & Co. in that market, was in Boston last week, and while here was entertained by Adna T. Denison, the firm's Boston representative.

E. B. Weston, of Dayton, Ohio, the inventor and manufacturer of the Climax paper cutter, is in town to-day.

Other recent trade representatives in Boston were C. H. Milliken, of Mechanic Falls, Me.; ex-Governor Cheney, F. P. Carpenter, of Manchester, N. H.; William Foulds, W. N. Smith, of Manchester, Conn.; E. C. Wilson, of Rainbow, Conn.; W. A. Whitney, of Sunapee, N. H.; J. L. Chalmers, of Camden, N. J.; Thomas Mole, R. M. Fairfield, of Fairfield, Mass.; Mr. Campbell, of Lee, Mass.; Charles S. Mayo, of Lawrence, Mass.; Mr. Williams, of Worcester, Mass.; George Raybold, of Mittineaque, Mass.; A. W. Esleeck, W. D. Judd, C. H. Davenport, of Holyoke, Mass.; K. B. Fullerton, Mr. Dillon, Fred Parks, C. E. O'Hara, D. Sargent Pillsbury, and H. L. Carter, of New York.

The Boston manager of the Knowles Steam Pump Works, whose plant at Warren, Mass., was destroyed by fire last week, states that the loss of the Warren plant will not cause any serious interruption to the business of the company. A large stock of all kinds of pumps of its manufacture is on hand from which to fill orders, while its facilities at its Cambridge shops are ample to fill all order work that may be required.

Mr. Nye, manager of the Cumberland Manufacturing Company, reports quite a lively business in "Warren" filters. Among recent filter plants erected was a 1,700,000 gallon plant for Crocker, Burbank & Co., Fitchburg, Mass., which was started up the last week in May. In June a few extra filters were added to the large plant of the Hollingsworth & Whitney Company, at Waterville, Me., while the 450,000 gallon plant of the Contoocook Valley Paper Company, at West Henniker, N. H., was started up a few weeks ago. Another plant completed last June was erected for Cheney Brothers, the well-known silk manufacturers at South Manchester, Conn., the filters being used by these manufacturers for purifying their condenser water from grease, and the filtered water used for washing the silk—a striking proof of the high character of work done by the "Warren" filter system.

The company has now under construction a 3,000,000 gallon plant for P. H. Glatfelter at Spring Forge, Pa., which will be in full operation the coming week. Other plants under construction are a 1,700,000 gallon plant for the Delaware Paper Mills, Philadelphia, which recently passed into the control of Dill & Collins; a 1,000,000 gallon plant for the Marinette and Menominee Paper Company, of Marinette, Wis.; a 700,000 gallon plant for the Megargee Paper Mills at Modena, Pa., these plants to be ready for use in September.

The business of the Cumberland Manufacturing Company is not, however, confined to paper mills and manufacturing establishments, as will be noted from the fact that a 3,000,000 gallon plant is now being erected for the Biddeford and Saco Water Company, a 1,500,000 gallon plant for the Warren Water Company, Warren, Ohio; a 1,000,000 gallon plant for the town of Reading, Mass.; a 500,000 gallon plant for the town of Keyport, N. J., and a 250,000 gallon plant for the Bryn Mawr Water Company, Overbrook, Pa., these two plants just mentioned being about completed.

The company is also putting in a 12,000,000 gallon plant for S. D. Warren & Co., at Cumberland, Me., to take the place of the plant erected in 1885, this new plant being necessitated because of the changes made at the paper mills whereby the room occupied by the old filters was needed for mill extension. Mr. Nye stated that he had numerous inquiries from cities and manufacturers and was in correspondence with many parties interested in water filtration, so that with the business in view and the work in hand he had no reason to complain of dull times so far this year.

R. C. McQuillen, of the A. Storrs & Bement Company, who, with his wife, has been doing Europe this summer, returned to Boston on the steamer Gallia last Saturday. "Rob" says that he enjoyed his tour very much, and he tells some very interesting stories incident to his foreign travels. He tells of seeing James Linton, of Linton Brothers & Co., cardboard manufacturers, of Pawtucket, R. I., in Paris and London and not knowing him. On divers occasions Mr. McQuillen passed his old Pawtucket friend, but always entertained a doubt of his identity, as Mr. Linton was sporting a very swell silk hat, a style of headgear with which the Pawtucket cardboard maker was not associated at home. When on a rainy day in London he wore the old familiar derby he was readily recognized, and it is said that the two tourists had something together.

DELESDERNIER.

HOLYOKE.

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., August 15, 1895.

Trade conditions for the week now drawing to a close have undergone very little change, and the usual August dullness continues in force.

The fine mills are perhaps a little better off for orders than the book mills, but neither can brag much over the situation. There is enough doing to keep the machines and the help busy, and that is about all that can be expected just now.

Prices remain about as they have been since early spring, and there is very little disposition to shade them. Manufacturers feel that paper has reached the bottom so far as prices are concerned, and that it would be very injudicious to reduce the figures.

The stock market has undergone very little change. There is some call for foreign rags, and choice lots of domestics find buyers when the quotations are sufficiently tempting. On the whole, prices are pretty firm.

There has been considerable said in the local papers of late regarding the removal of certain manufacturing concerns from this city to Willimansett, because land is cheaper there and the owners have been trying to induce manufacturers to locate in that village. The National Blank Book Company has been frequently mentioned as likely to go there, but I am in a position to announce that this company has made a satisfactory arrangement with the Holyoke Water Power Company, and has re-leased its present quarters in the Cabot street mill for a term of years.

The Coburn Trolley Track Company has, however, just bought 6 acres of land at Willimansett, near the railroad station, on which it may in time build a manufactory. There are several other small concerns which may follow this example and locate across the river. The several lines of electric cars which have been opened within a few weeks make it possible for mill hands to reside farther away from their work than they have been able to before.

Frank A. Rivers, of this city, the well-known mill contractor and builder, has been obliged to seek relief in the insolvency court. His total indebtedness foots up $18,816, and he offers his creditors 20 cents on the dollar to compromise. Among Mr. Rivers' creditors are Watson Ely & Son, Holyoke, $5,900; Frederick & Kelly, Holyoke, $700; J. Russell & Co., Holyoke, $789; C. H. Tower, Holyoke, $1,124; Cheney-Bigelow Wire Works, Springfield, $825; Day & Jobson, Springfield, $357; M. J. Brunton, Springfield, $1,000; Morrissey & Shea, Springfield, $1,100; Westfield Brick Company, Westfield, $543; John W. Woods & Son, Springfield, $750; Derby Lumber Company, Derby, Conn., $800. A hearing will be given to the creditors at Springfield September 6.

William Jolly, of the firm of Jolly Brothers, lost his twelve year old son Ralph by drowning last Saturday. The boy was bathing in the river with some companions and got beyond his depth. He was drowned before help could reach him, and the body was recovered some time afterward.

Thomas Stevens, of South Hadley Falls, an employee of the Carew Manufacturing Company, while at work in the mill one day recently was badly scalded about the head and limbs, and will be unable to work for some time.

M. J. Kelley, who was for a number of years superintendent of the old Dickinson & Clark Paper Mill, has been visiting friends in this city. He is now located in Delaware. Mr. Kelley sees great changes in Holyoke since he left the city.

Tower & Hardy have prepared plans for a large paper mill which is to be built by the Standard Straw Board Company, of Chicago, before long.

The Mittineaque Paper Company's mill, which has been shut down about ten days for repairs, started up on full time this week.

W. F. Whiting, treasurer of the Whiting Paper Company, has gone to Chicago on a business trip.

A good story is related about a local drummer who recently entered the paper trade and knows about as much of the practical part of the business as a tramp does of sawing wood. He was trying to sell a merchant in a neighboring town a bill of manilla paper and the merchant asked him why the blue tinted paper cost more than the plain. "Don't you understand?" said Charlie. "They use blue rags in that grade and just now they come very high."

The American Pad and Paper Company has bought a large lot from the Holyoke Water Power Company at the corner of Appleton and Winter streets, 100x125 feet, on which a brick factory four stories high will be built at once. The company has occupied quarters in the Whiting street building on Main street since it was organized. The plans for the building are being made by Architect Alderman.

B. F. Perkins & Son have bought 6 acres of land at Willimansett, near the Boston and Maine Railroad tracks, on which they will erect a building.

The wedding of Charles D. Heywood, assistant superintendent of the Deane Steam Pump Company, and Minnie H. Butler, of Boston, took place at the "Hub" this week.

J. S. Newton and wife are at Narragansett Pier, R. I.

The water in the river is pretty low, but it has not caused any serious trouble as yet.

H.

British Paper Imports.

Mill owners and managers are showing considerable interest in the marking of foreign paper exported to Great Britain. It is contended that the provisions of the Merchandise Marks act are being evaded. Paper mill employees have also taken up the matter with energy in various parts of the country. By previous arrangement Wm. Ross, the general secretary of the National Union of Paper Mill Workers, addressed a meeting of the whole of the workers at Collyhurst Paper Mill, in the machine house, on Thursday night. In the course of his address Mr. Ross stated that he considered it was high time the workers of this country, and especially paper mill workers, raised their protest against the deliberate infringements of the Merchandise Marks act, and that they should press strongly for that act to be amended so as to stop such infringement.

At present the marking of foreign paper was a mere mockery, seeing that only the outside wrappers were so marked. [Hear, hear.] The speaker also contended that the first duty of any Government should be to provide work as far as possible for its own people, and seeing so many workers were compelled to go idle he maintained that the Government, if in earnest on the unemployed question, should, as a matter of duty, see that all goods required by the British Government were made by British workers. [Applause.] Until that was done the famous "fair" wage and "fair" hours resolution of the House of Commons could not possibly be given effect to. With so many paper mills and paper machines standing idle, and many others only working half time; with so many paper mill workers being driven from the trade they had been brought up into the towns or to strange countries, the executive and great body of the members of their union had been compelled to admit that our one-sided free trade system was not proving the blessing its founders hoped.

Until we regained our bargaining power with the foreigner we would continue to be flooded with his surplus prison and other labor products, and our industries would undoubtedly languish. To use the words of a prominent labor leader, J. H. Wilson, M. P., at the recent meeting of the Labor Electoral Association: "It was not the case that we could beat the foreigner hands down while he was paid half the money earned by Englishmen." [Cheers.] At the conclusion of Mr. Ross' address the whole of the workers joined the union and the foreman was appointed collector.—*Paper Trade Review, London.*

It is of course necessary to have a set of heavy fire tools in every boiler room for the purpose of handling heavy fires, but there should also be a set of light tools there, for in many places the latter may be used to advantage during a large portion of the time, thus saving much labor on the part of the fireman. Do not compel him to use a hoe that weighs 75 pounds, more or less, to draw the ashes out of the ash pits, when a much lighter one will answer every purpose.

When it is necessary to run night and day through the week without stopping, each important belt should be supplied with an idler pulley, which can be tightened upon it while running incase of a slip.

Supplies—Department of the Interior.

The following is a list of awards for supplies for the Department of the Interior during the fiscal year 1895-6:

PAPERS.

500 rms foolscap paper, $1.12.
500 rms legal cap, white, $1.12, do.
3,000 rms letter paper, 12½ lbs to ream, $1.05, do.
300 rms commercial note, 62c.
200 rms note paper, $2.52.
10 rms folio post, linen stock, 17x22 in, $3.98.
10 rms flat cap, linen stock, $1.92.
10 rms super royal, $6.50.
10 rms envelope paper, gold, $2.19.
100 rms tissue manilla paper, 8¼c.
100 rms wrapping paper, manilla, 40x48 in, $7.87.
75 rms do 36x40 in, $4.72.
450 rms do 24x36 in, $3.15.
25 rms do 18x24 in, $2.10.
300 rms blotting paper, $8.33 and $5.95.
1,200 rms typewriter paper, a, 1,000 rms 8x10½ in, $1.48; b, 200 rms 8x12½ in, $1.82.
28,500 sheets semi-carbon and ink manifold paper, a, 20,000 sheets semi-carbon, cap size, 1 2-10c; b, 4,500 sheets ink manifold paper, letter size, 3c; c, 1,000 sheets do cap size, 3¼c; d, 3,000 sheets do 8x13 in, 3½c.
900 rms paper equal to American linen, a, 800 rms 8x10½ in, $1.15; b, 100 rms 8x12½ in, $1.35.
350 rms paper equal to Paragon No 1½, a, 150 rms 8x10½ in, $1.15; b, 200 rms 8x12½ in, $1.35.
35,000 sheets bond paper, pure linen, white, 16x21 in, 1 7-10c and 1c.
22,000 rolls paper, toilet, in rolls, 5½c.
7,000 sheets cardboard, extra heavy, 18x22 in, 1 7-10c.
90,000 sheets do coupon blank, 8x11½ in, 1-5c.
20,000 sheets bristol board, 3 ply, 15x20 in, 3 65-100c.
50 sheets drawing paper, 54c.
350 sheets do double elephant, 8c.
250 yds do Paragon, 58c.
400 sheets tracing paper, vegetable, 22c.
3,000 sheets bristol board, a, 2,000 sheets, 3 ply, 10x12 in, 24-10c; b, 500 sheets, 3 ply, 18x22 in, 10c; c, 500 sheets, 4 ply, 18x22 in, 13½c.

Preservative Coatings for Ironwork.

A. H. SABIN.

(Concluded.)

Besides the California "Maltha," other coatings belonging to the second class—those which become hard at ordinary temperatures—are ordinary oil paints of various kinds and certain mixtures more or less resembling varnishes. The oil paints consist of some powdered pigment, usually a metallic oxide or carbonate, suspended in linseed oil or some inferior oil; some of these paints are sold at prices which preclude the possibility of using linseed oil. I know of one paint that is used a good deal, sold at 45 cents a gallon. These paints are fairly durable, and some of them very durable on wood; but on iron they have not proved to be so, and experience has shown that the metallic oxide acts as a carrier of oxygen to the underlying iron, causing it to rust instead of protecting it. For this reason these paints have been unsatisfactory and to a large extent have been abandoned.

It is well known that linseed oil alone is easily attacked by sulphur compounds, and it is necessary, when a coating to resist sulphurous gases is wanted, to compound it properly with a suitable resinous ingredient. An ordinary oil paint is also more or less porous, and the iron underneath is observed to rust and then throw off the paint. There was a time when nearly all the iron bridges in this country were covered with these paints; but they have almost gone out of use, as the bridge engineers found they did not, in fact, give iron the protection which their successful use on wood surfaces seemed to promise.

You all know that good iron paint on a freight car will last about as long as the car will, and that a corrugated iron roof painted with the same paint will not last more than three years. I think the reason is just this: A piece of iron without anything on it can be kept for a long time under proper conditions, but if you allow it to begin to get rusty, the rust corrodes it very fast, because that coating of oxide of iron acts as a carrier of oxygen to the layer underneath it and oxidizes that, and that the one underneath, and so on. With this oxide paint you put on a coating of iron rust, and it is the most suicidal thing you can do, and I believe that is the reason why the use of oxide of iron on ironwork has so extensively gone out of use. Some have had better success than others; but as you go over the country you see that bridges are not painted with oxide of iron any more, and I think that is the reason.

Greater success has been attained by the use of varnishes or mixtures intended to be of that sort, fluids, not holding pigments in suspension, but drying either by evaporation or oxidation, or both. Most of these preparations are only mixtures, and are compounded mainly of coal tar, dead oil, resin and benzine, sometimes with the addition of resin varnish and driers. Especially there has been a practice of coating the hot pipe with coal tar or coal tar preparations; whatever good results may have in former times been obtained in England by this method, certainly it is not very successful here; personally, the writer of this doubts if it ever was of much value, but certainly the present methods of making coal tar, so different from the practice of forty years ago, give a product which is sure to change rapidly. It is the common belief of all those most familiar with the subject that anything depending for its elasticity on coal tar or mineral oil cannot be durable, although it may be cheap.

As has already been said, no preparation which is used cold is as good as a suitable baked coating; but there are many places where baked coatings are not admissible, for example, railway and other bridges, iron roofs, and in general structural ironwork, already in place; also the rivet heads, &c., of field riveted work; in fact, there is and always must be a great demand for a coating which can be applied by a brush, and which will dry within a reasonable time in the open air. As it is not necessary to have for this purpose a very quick drying substance, we should be able to make a preparation which shall possess very great durability.

It should be made with a pure asphalt, not a cheap grade, but such as is used exclusively in varnishes, and pure refined linseed oil as a base; it should be made by a skilled varnish maker, and be in no sense a mixture; it should be absolutely free from coal tar or coal tar products, mineral oil, resin or benzine; it should be thinned with the best turpentine; it should be sufficiently soft and elastic not to chip off even under a blow in the coldest weather, and not softened, but rather hardened by heat; it should not be affected by acids or saline solutions. It cannot be expected to last forever, but it may be more durable than anything which has been used for the purpose within our knowledge of the matter.

It should not dry too quickly, so that it can be applied without skilled labor; it must be perfectly homogeneous, so that there is no waste in using it; it must not depend on heat for its fluidity, so that it may be used in winter or summer; being free from benzine, its storage and use are free from any unusual fire risk. After ten or twelve hours it cannot be washed off by the severest storms and it is fairly hard and dry in thirty-six hours, although it continues to harden for several days.

Such a coating may give a beautiful black finish, having neither a dead surface nor a high gloss, but resembling, at a short distance, a Bower-Barff oxidized surface, and it is very suitable for either exterior or interior ornamental ironwork, as well as for heavy structural work.

Varnish is different from paint in this respect. As soon as the turpentine has got out of the varnish, when you put on water it hardens it; when you put water on paint it tends to wash it off. A properly made varnish, whether made of asphalt or copal gums, is hardened by water; that is well known, and for that reason you can make a coating of this sort, which shall resist a rainstorm before it gets dry, and while it is still tacky and partly wet to the finger, it will resist rain, because water hardens it. It is not intended to make a smooth surface, such as you would get on a panel, but it is a preservative coating. The bridge engineer does not admit that he varnishes his bridges, he paints them, and so to please him we call it a bridge paint; but it is really a varnish, and there is no pigment in it.

I would also call your attention to another point. I spoke of the importance of using a pure, refined linseed oil. It is just as important to use refined linseed oil in black varnish as white varnish. To get the color out of linseed oil is of small importance; the primary object is to get out a non-drying constituent, so that the oil will dry without loading it with driers. There is one thing in my experience in the varnish business which agrees with the experience of everybody else in the business, and that is that every bit of drier which you put into a varnish or paint hurts it; and what we aim at is to make a varnish without any drier. We have not got to that point yet, and if anybody claims that he has got such a varnish I should be a little skeptical about it. But in the last ten years varnish makers have reduced the dryer a great deal, and have done without it by refining the linseed oil and getting the non-drying part out of the oil. By getting that out you accelerate the drying and improve the durability of your paint.—*Industrial Record.*

Repairing Some Bad Wrecks.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

By M. W. Danielson.

In recent years the tendency has been toward the attainment of a decided increase of speed in engines. The increase in the revolution has been marked, and the great advance made in many of our machines has enabled many mills to get off an amount of product which would have surprised the ordinary mill operative of thirty years ago.

Of course the speed attained depends to a considerable extent on the mill itself. The distinctive feature of American made

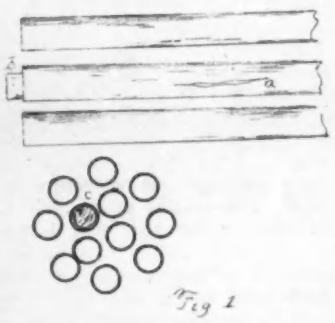

Fig 1

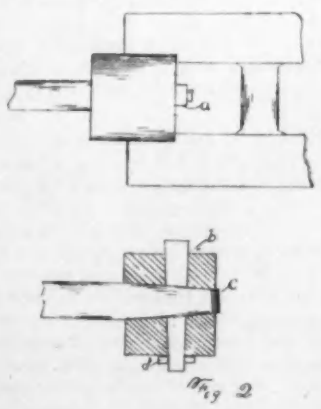

Fig 2

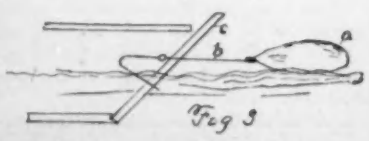

Fig 3

machinery, including engines, however, is its speed.

Experts are usually called to testify with reference to some particular acts or matters of which men in general are not competent to judge, and are permitted to give opinions on matters concerning which their judgment is superior to that of men in other callings, because of a special line of education and experience. These experts, however, are sometimes at fault. I recollect an incident which proves this. A few years ago an expert on engines pronounced the speed and relating conditions of the engine where I was employed correct in all particulars. Soon after the piston rod broke off at the crosshead, and investigation proved that high speed was the cause.

It may be interesting to know how this break was fixed. In Figure 2 *a* marks the place where the bolt snapped off, permitting the tapering rod to pull out and disable the engine. We repaired this by cutting a slot through the crosshead and piston rod, and driving in a steel key, *b*. A pin, *d*, held the key tightly. The butt *c* of the rod was allowed to remain as formerly. The engine ran well when fixed like this. Of course there must be tools on hand to cut slots and make keys.

As in many other places around a steam plant, it pays to spend a few dollars in order to have things as secure as possible against breakdown, and particularly where your whole plant depends on the engine being continuously run. Yet many will neglect these precautions. A well equipped tool room is advisable. Another wreck which was repaired in a very short period is recalled. The heater system was out of order, and investigation upon removal of the head of the heater proved that there was a crack in one of the tubes like that shown at *a* in Fig. 1. Consequently no water could be pumped into the boiler. The mill was on a large contract, and the proprietor wished us to keep the engine going for a few weeks in some way, when a new tube could be put in at leisure. We simply plugged up each end of that tube with a wooden plug, like *b* and *c*, so that it was practically thrown out of use, and we had the power running in a few hours.

The accumulation of foreign matter in pipes has done much to cause these accidents. Quite recently there was a serious accident in a large city due to a "dead end" in the main pipe. This formed a good place to accumulate, and also an abrupt stop for the steam when it came from the boiler. An examination of the heater will sometimes show that the flues are covered with a deposit of fatty slime, showing on analysis about 52 per cent. of mineral oils and paraffine, and 27 per cent. of animal fat.

Feed water should always be filtered so as to remove any oils or grease. The introduction of grease to the inside of the boiler should be avoided—especially where the water from the condenser is used for feeding the boiler—by the use of a sufficiently large feed water filter.

The proper care of flues will do much toward the prevention of cracks and defects of the kind mentioned. An automatic waste gate for drainage purposes is illustrated in Fig. 3. The float *a* rises with the level of the water and through the agency of the lever system *b* is enabled to govern the gate *c*. There is no patent on this arrangement.

Oils are used for lubrication—that is, for reducing the friction between two rubbing surfaces. As is well known, when two surfaces are rubbed together friction more or less severe takes place, and up to the present time there has not been anything discovered which reduces friction any better than oil, although every little while some wonderful, so-called discovery of a liquid or paste which can be bought for practically nothing, and has lubricating properties far superior to any oil that was ever known, is heralded.

As a rule all of the lubricating properties that these compounds contain can be found in the air, and the purchaser generally finds himself so much the poorer, and if he has not damaged his machinery as well as expended his money he is fortunate. Good oils should be bought. The American manufacturer to-day is speculating on how he shall meet or compete with the foreign make of goods, yet he should not reduce the cost of manufacture by buying inferior oils. Oils weighted by some patent method which made them considerably cheaper than good material have been sent to market, and it is really remarkable to note the extent of the fraud resorted to and the degree of ingenuity displayed in this most successful art, or whatever name may be applied to this attempt to increase the weight or standard of oil fraudulently and with evil intent.

The most ingenious machines have been devised for the purpose. Many inferior substances are used at times; waterglass (silicate of soda) was tried, and there is a record of another tried several years ago, viz., blanc-fixe.

Chloride of barium is dissolved in water, likewise glauber's salts, and when the two solutions are dissolved and are poured together the fluid becomes milky and deposits a white sediment—the blanc-fixe—while the clear fluid is a simple solution of table salt; this precipitate, designated as sulphate of baryta, adheres to the surfaces of bearings. All of these defective oils may be avoided by purchasing from responsible parties.

A Great Electrical Plant.

At Fresno, Cal., work is progressing on the electric power transmission plant which is to carry power from the north fork of the San Joaquin River 33 miles to Fresno. It is to be in operation within 120 days, and is to deliver from 1,000 to 1,200 horse power. It will supply 1,000 incandescent lights, 100 arc lights, and motors for flour mills, planing mills and various other purposes, with a reserve for steel railroads.

The enterprise surpasses in some respects anything to be found on the Pacific Coast. A column of water only 18 inches in diameter at the bottom falling down a precipice 1,410 feet will drive large dynamos and will develop a power sufficient to run the machinery of Fresno even when the population shall have increased many fold. One-third of the power delivered will drive all the mills, the water works, machine shops, planing and grist mills, laundries, printing presses, elevators, packing houses, street cars and other machinery. The remaining 600 horse power will be available for factories and machinery in the future.

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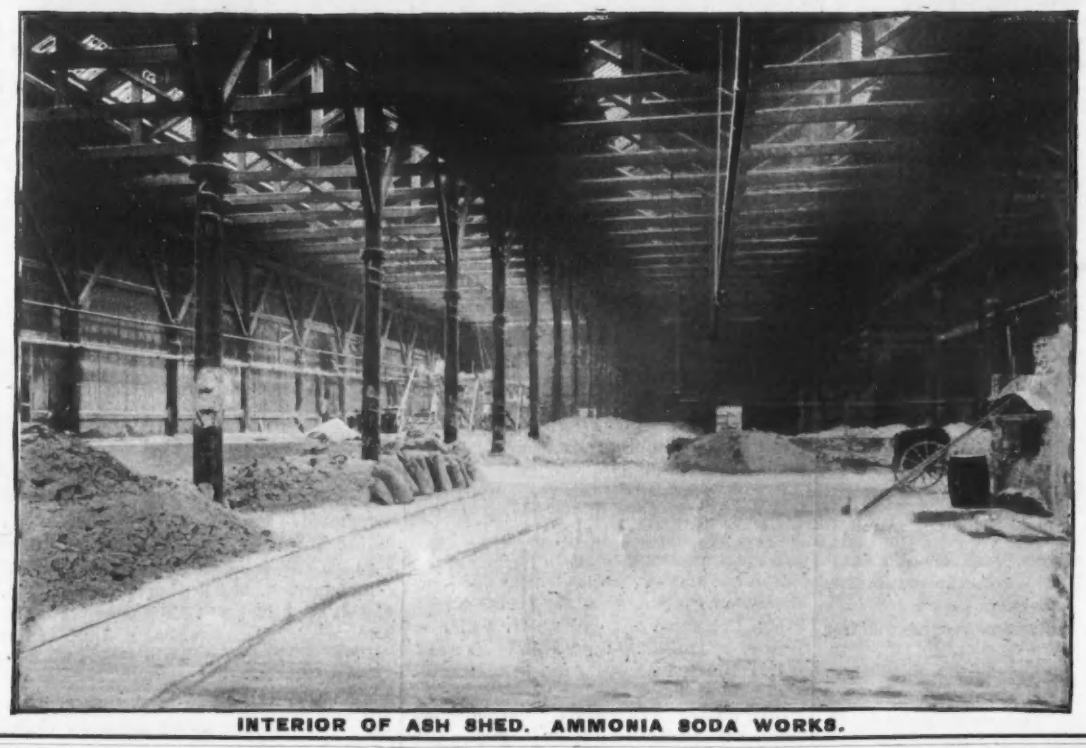
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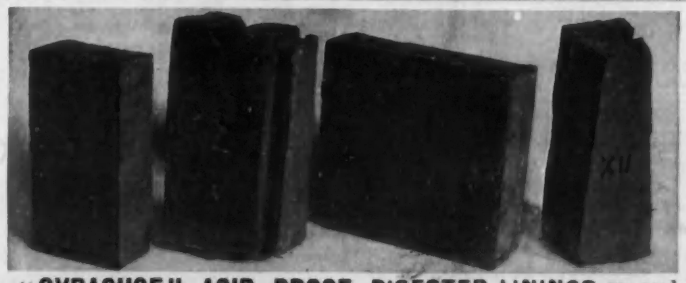
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Imports and Exports.

IMPORTS AT NEW YORK.

FOR THE WEEK ENDED AUGUST 9, 1895.

An. Colors..	765	$47,036	Paper.....	1,356	$44,225
Alum.....	22	210	Steel Pens..	2	235
Alum's Cake ----		—	Stationery .	16	1,088
Bl. Powders	379	6,231	SlatePencils	7	136
Soda Ash...	657	1,551	Clay.....	—	1,829
Soda, Caus.	180	2,022	J'te B'ts,&c.	469	3,702
Soda, Sal....	—	—	P.Hangings	26	1,021
Soda, Hypo.	—	—	Pap'r Stock	2,868	23,722
Ultramarine	—	—	Terra Alba.	—	—
Books.....	363	35,157	Waste.....	843	43,942
Newspapers	233	8,549	Wood Pulp	220	1,093
Engravings.	15	698			
Ink.....	109	1,334			
Lead Pencils	18	3,510	Totals...	8,758	227,951

Imports General Merchandise for the week ended August 9, 1895..... $7,234,466

IMPORTS OF PAPER STOCK AT NEW YORK.

FROM JANUARY 1 TO AUGUST 14, 1895.

Whence Imported.	*Rags.*	*Old Papers.*	*Chemical Fibre.*	*Ground Wood.*	*Manilla Stock.*
	Bales.	Bales.	Tons.	Tons.	Bales.
Alexandria...	685	....	....	....	....
Antwerp.....	2,976	5	1,029	....	12,024
Bordeaux.....	1,029	....	....	....	850
Bremen.....	2,615	725	40	....	2,854
Bristol.....	....	...	....	....	2,298
Buenos Ayres.	520	....	....	....	....
Calcutta.....	....	...	....	....	5,838
Cen. America.	180	....	....	....	....
Christiania....	....	....	85	....	....
Copenhagen..	...	....	125	....	1,581
Dundee.....	....	....	1	....	708
Fiume.....	....	....	34	....	....
Geestemunde.	412	....	....	....	537
Genoa.....	898	....	....	....	3,568
Ghent.....	90	40	....	....	395
Glasgow.....	146	53	....	....	78
Hamburg.....	4,264	279	1,477	....	2,110
Havre.....	....	....	....	....	1,063
Hiogo.....	6,544	....	....	....	....
Hull.....	4,751	40	2,081	....	7,544
Kobe.....	11,578	....	....	....	....
Leghorn.....	1,608	....	....	....	185
Liverpool.....	770	195	....	....	12,859
London.....	3,432	1,466	....	....	7,331
Marseilles....	155	....	30	....	1,597
Newcastle....	....	221	....	....	2,454
Rosario.....	....	....	....	....	98
Rotterdam....	2,085	....	67	....	2,564
Stettin.....	907	....	136	....	1,262
Trieste.....	123	....	45	....	....

NEW YORK IMPORTS.

FROM AUGUST 7 TO AUGUST 14, 1895.

Paper Stock.

F. Bertuch & Co., Island, Stettin, 81 bs. manillas.
Castle & Gottheil, Otranto, Antwerp, 25 bs. manillas.
Same, Elysia, London, 37 bs. rags.
Same, Greece, London, 40 bs. rags.
Darmstadt & Scott, by same, 20 bs. rags.
Same, State of Nebraska, Glasgow, 6 bs. rags.
James Pirnie, Otranto, Antwerp, 100 bs. manillas.
Same, Francisco, Hull, 66 bs. rags.
Same, Tauric, Liverpool, 82 bs. manillas.
C. F. Donner, Greece, London, 37 bs. rags.
Jessup & Moore Paper Company, Elysia, Leghorn, 140 bs. rags.
J. W. Mason & Co., Island, Stettin, 91 bs. manillas.
Same, Tauric, Liverpool, 147 bs. manillas.
Oelrichs & Co., Dresden, Bremen, 15 bs. manillas.
Felix Salomon & Co., Dania, Hamburg, 113 bs. rags.
Train, Smith & Co., Francesco, Hull, 72 bs. rags, 188 bs. manillas.
Same, Dania, Hamburg, 47 bs. rags.
Lewy Brothers, Francesco, Hull, 289 bs. rags.

Paper.

Dingelstedt & Co., Dresden, Bremen, 2 cs.
G. Meier, by same, 5 cs.
Hensel, Bruckmann & Lorbacher, Otranto, Antwerp, 91 cs.
R. F. Downing & Co., by same, 14 cs.
L. C. Wagner, Rhynland, Antwerp, 5 cs.
Thos. Garnar & Co., by same, 12 cs.
L. De Jonge & Co., by same, 37 cs.
G. W. Sheldon & Co., by same, 54 cs.
G. Gennert, by same, 30 cs.
C. S. Abbott, by same, 30 cs.
W. J. Buchanan, by same, 6 cs.
John Hunter, Francesco, Hull, 10 cs.
Marcus Ward & Co., by same, 7 cs.
W. Wicke, Lahn, Bremen, 3 cs.
American Trading Company, Glenogle, Yokohama, 3 cs.
Eimer & Amend, Dania, Hamburg, 4 cs.
R. F. Downing & Co., by same, 16 cs.
Hensel, Bruckmann & Lorbacher, by same, 24 cs.
F. J. Emmerich, by same, 3 cs. hangings.
American Tobacco Company, La Normandie, Havre, 23 cs.
A. V. Benoit, by same, 63 pkgs.
L. De Jonge & Co., Manhanset, Rotterdam, 33 cs.
M. Adler & Co., Maasdam, Rotterdam, 30 cs.
Eimer & Amend, by same, 15 cs.
W. H. S. Lloyd & Co., Berlin, London, 2 cs. hangings.
Barbour Brothers, State of Nebraska, Glasgow, 10 cs.

BOSTON IMPORTS.

FROM AUGUST 8 TO AUGUST 14, 1895, INCLUSIVE.

Paper, &c.

Wm. H. Guild & Co., Gallia, Liverpool, 6 bs. periodicals.
Gregory & Brown, by same, 1 cs. paper hangings.
Franklin Educational Society, by same, 1 cs. paper.
Geo. C. Whitney Company, by same, 2 cs. stationery.
Dennison Manufacturing Company, Kansas, Liverpool, 7 bs. tissue paper.
Wadsworth, Howland & Co., Georgian, Liverpool, 4 cs. drawing paper.

Paper Stock.

Train, Smith & Co., Georgian, Liverpool, 190 bs. rags, 12 bs. manillas.
Train, Smith & Co., Kansas, Liverpool, 168 bs. waste paper.
C. A. Cheney, by same, 38 bs. rags; 58 bs. waste paper.
Horace Dutton & Co., by same, 139 bs. waste paper.
R. H. Overton & Son, by same, 75 bs. manillas.
Warren & Co., by same, 10 bs. waste paper.
Train, Smith & Co., Hindoo, London, 108 bs. rags.
Horace Dutton & Co., by same, 242 bs. rags.
Train, Smith & Co., Scandinavian, Glasgow, 61 bs. waste papers.
E. P. True, by same, 65 bs. waste paper.

Sizing.

Train, Smith & Co., Kansas, Liverpool, 276 bags.
C. A. Cheney, by same, 133 bags.
E. W. McClintock, Gallia, Liverpool, 125 bags.
Thomas Groom & Co., by same, 80 bags.

Bleaching Powder.

J. L. & D. S. Riker, Kansas, Liverpool, 488 cks.
Wing & Evans, by same, 85 cks.
Bowman, Thompson & Co, Georgian, Liverpool, 98 cks.

Caustic Soda.

Edward Hill's Sons & Co., Georgian, Liverpool, 50 drums.

Soda Ash.

Wing & Evans, Georgian, Liverpool, 108 cks. and 800 bags.
Warren & Co., Kansas, Liverpool, 30 cks. and 200 bags.
Wing & Evans, by same, 58 cks.
Wing & Evans, Gallia, Liverpool, 300 bags.

Refined Alkali.

Linder & Meyer, Georgian, Liverpool, 20 cks.

Soda Crystals.

Warren & Co., Kansas, Liverpool, 420 bbls.
Wing & Evans, Gallia, Liverpool, 150 bags.
Bowman, Thompson & Co., Georgian, Liverpool, 25 bbls.

Crude Sulphur.

Linder & Meyer, Georgian, Liverpool, 2,004 bags.

PHILADELPHIA IMPORTS.

FOR THE WEEK ENDED AUGUST 10, 1895.

Soda Ash.

Order, Southwark, London, 85 tcs. and 800 bags.

Soda Crystals.

Order, Southwark, London, 65 cks., 50 bbls. and 50 kegs.

Bleaching Powder.

Order, Southwark, London, 30 cks.

Sulphur.

Order, Southwark, Liverpool, 334 bags.

EXPORTS of Paper, &c., from New York for the Week Ended August 13, 1895.

BOOKS, to Antwerp, 6 cs.; British Australasia, 8 cs.; British West Indies, 14 cs.; Brazil, 2 pkgs.; Central America, 1 cs.; Chili, 20 cs.; Leipsic, 6 cs.; Liverpool, 17 cs.; London, 24 cs.; New Zealand, 14 cs.; Peru, 13 cs.; Books, 1 cs.; Colombia, 3 pkgs.; Venezuela, 20 cs.; Dutch West Indies, 2 pkgs.; Hayti, 3 cs.; Japan, 3 cs.; Mexico, 21 pkgs.; Philippine Islands, 6 cs.; Rome, 6 cs.; Rotterdam, 1 cs.; Southampton, 5 cs.; Argentine Republic, 20 cs.

PAPER, to Antwerp, 4 cs.; British Australasia, 9 cs.; British West Indies, 144 pkgs.; Brazil, 141 pkgs.; Central America, 21 pkgs.; Cuba, 15 pkgs.; China, 2 pkgs.; Genoa, 11 cs.; Hull, 2 cs.; Hamburg, 154 pkgs.; Liverpool, 142 pkgs.; New Zealand, 177 pkgs.; Newcastle 2 cs.; Peru, 1 pkg.; Uruguay, 9 pkgs.; Colombia, 84 pkgs.; Venezuela, 14 pkgs.; Dutch West Indies, 6 pkgs.; Ecuador, 2 pkgs.; Hayti, 6 pkgs.; Mexico, 137 pkgs.; Porto Rico, 1 cs.; Southampton, 1 pkg.

STATIONERY, to Antwerp, 1 cs.; Argentine Republic, 10 cs.; British Australasia, 5 cs.; British West Indies, 17 pkgs.; Brazil, 4 cs.; Berlin, 1 cs.; Bremen, 1 cs.; China, 3 cs.; Cuba, 11 cs.; Genoa, 2 cs.; Hamburg, 2 cs.; Liverpool, 2 cs.; London, 41 pkgs.; New Zealand, 2 cs.; Nova Scotia, 1 cs.; Peru, 1 cs.; Uruguay, 5 cs.; Venezuela, 6 cs.; Ecuador, 2 cs.; Hayti, 3 cs.; Japan, 11 cs.; Mexico, 16 cs.; Port Said, 2 cs.

SANDPAPER, to Argentine Republic, 143 pkgs.; Brussels, 14 bdls.; Olten, 1 cs.; Uruguay, 3 cs.; Colombia, 4 bs.; Venezuela, 4 bs.; Dutch West Indies, 1 bale; London, 54 bdls.; Mexico, 1 bale; Brazil, 7 pkgs.; Bremen, 5 cs.

TWINE, to Argentine Republic, 10,500 bs., 53 pkgs.; British West Indies, 2 bs.; Central America, 1 bale; China, 1 pkg.; Dutch West Indies, 6 bdls.; Liverpool, 1,860 bags; London, 1,401 bags; Mexico, 10 pkgs.; New Zealand, 3 bs.; Uruguay, 2 bs.; Colombia, 4 bs.; Venezuela, 13 bs.; Brazil, 58 bs.; Newcastle, 211 bags.

TAGS, cases, to New Zealand, 1.

LABELS, cases, to British West Indies, 1.

CARDBOARD, cases, to Cuba, 1; Venezuela, 1.

CARDS, cases, to Cuba, 1.

STRAWBOARD, cases, to Cuba, 2; Colombia, 2.

WOOD FIBRE, to Antwerp, 269 rolls; Hull, 1,400 bdls.

COTTON WASTE, bales, to British West Indies, 3; Hamburg, 448; Peru, 8; Colombia, 40; Venezuela, 5.

WALL PAPER, cases, to Hayti, 1; Colombia, 1 bale.

RAGS, bales, to Liverpool, 25.

AGGREGATES AND VALUES.

Wood Pulp, bdls.....	1,188	$1,400
Wood Pulp, rolls.....	266	950
Cotton Waste, bs.....	504	7,406
Rags, bs.....	25	2,300
Paper, reams.....	—	—
Paper, pkgs.....	1,120	8,546
Paper, cases.....	30	547
Books, cases.....	224	19,036
Stationery, cases.....	149	12,587
Rosin, bbls.....	5,836	18,975
Totals.....	9,342	$71,747

Exports General Merchandise for the week ended August 13, 1895..... $6,111,882

LOCATIONS
— FOR —
PAPER MILLS.

The name of the Chicago, Milwaukee and St. Paul Railway has long been identified with practical measures for the general upbuilding of its territory and the promotion of its commerce, hence manufacturers have an assurance that they will find themselves at home on the company's lines.

Paper mills located or now locating in Wisconsin and elsewhere in the territory of the Chicago, Milwaukee and St. Paul Railway are able to command the Western trade on account of the advantage of proximity to raw material and market, central location and transportation facilities.

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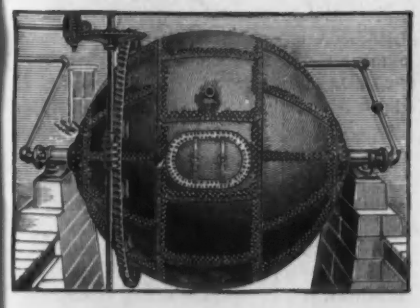
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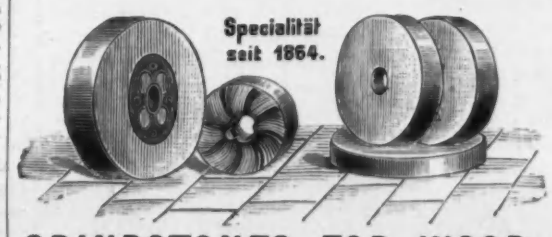

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NEW YORK: SATURDAY, AUGUST 17, 1895.

THERE will be found in another column a report of a meeting—taken from a London contemporary—held to consider the question of imports of foreign made paper into the United Kingdom. The issue was chiefly on the subject of "infringements," so called, of the Merchandise Marks act; but a point made by a representative of the paper making interest is of other importance. It is that which avows belief in the weakness of the British tariff system.

THE restoration of confidence and the resumption of industrial activity are nowhere more signally in evidence than in the completed statistics of the business of the State savings banks, the totals down to July 1, 1895, having now been made public. As will be seen, they show that over $38,000,000 more than the year before has been placed to the credit of depositors, and that the resources of the banks have increased over $40,000,000. The statement is as follows: Resources, $762,511,230.66; due depositors, $669,266,016.19; other liabilities, $502,492.19; surplus, $92,742,722.28; open accounts, $1,654,427; accounts opened, 316,012; accounts closed, 261,759; deposits received, $198,609,699.54; deposits withdrawn, $183,597,198.89; interest for year, $23,394,269.75; expenses, $2,309,106.98. Last year the total resources were $721,547,892.30; due depositors, $630,944,149.54; other liabilities, $322,268.07; surplus, $90,281,474 69; open accounts, $1,603,533; accounts opened, 276,440; accounts closed, 293,844; deposits received, $176,051,482.71; amount withdrawn, $210,439,274.26; interest credited, $22,386,365.08; expenses, $2,115,591.77.

DIMINISHING exports and increasing imports of merchandise are a feature of the Treasury statistics for the seven months ended July 31. The excess of imports amounted in values to $21,603,823 On the other hand the exports of gold were $12,539,961 in excess of the imports. Further than this the merchandise imports for the same period were valued at $67,388,755 more than for the corresponding period last year, the exports showing a decrease of $13,397,777, making the total balance of trade against us $80,786,532 on merchandise accounts, exclusive of gold and silver, for the seven months.

VERY little has been heard of late about the practical development of the electrolytic process for bleaching paper pulp or for disassociating chlorine and caustic soda, yet bits of information coming from various points indicate that electrolysis has become commercially practicable. Some information on this point, and as to the success attained in Europe, is given in an extract from a London contemporary which we reproduce in another column. If these successes are assured there can be no good reason why they should not be repeated in this country, where we have abundant facilities and all of the resources necessary to make electrolysis, in its application to paper making requirements, of useful effect.

THE recent visit of a delegation of leading citizens of Atlanta, Ga., to New York in the interest of the Cotton States and International Exposition, gave rise to a resolution by the New York Chamber of Commerce which is a reiteration of the opinions expressed in these columns. In substance the resolution declares that the commercial interests of the entire country would be promoted by a better mutual knowledge of the resources and industries of each section and of the South American republics, whose exhibits will be a feature of the coming exposition at Atlanta, and that a better understanding of financial conditions would be gained by personal intercourse between the business men of our several sections. The resolutions further urge the commercial and industrial interests of New York—and this applies with equal force to other States—to avail themselves of the opportunities which the exposition will afford for making a creditable exhibit of its resources and activities, and it is recommended that all who can possibly do so should visit Atlanta during the fair, both for the purpose of acquaintance and information. It ought not to be necessary to urge upon our people a course so obviously in the interest of good feeling and mutual benefit.

IT is possible that ere long another commercial question will be up for international settlement—that of convict made goods. In almost all European countries, continentally located, there is a disposition to make money out of convict labor, the Governments themselves taking a hand in the matter of profits. Undoubtedly it is to the interest of good government to make penal institutions self supporting; but it is questionable if the right exists to pit convict labor against honest labor for the purpose of securing supremacy in the world's markets. The thing involves a sort of competition which fair minded people will find it difficult to tolerate, and which will sooner or later demand regulation. Such goods, it is supposed, have reached the United States from continental Europe. It is alleged that a certain proportion of German paper making is now carried on by means of convict labor, which of itself costs so little as not to enter into the expense of manufacture to any appreciable degree. An English contemporary charges that convict made goods are sent to British colonies from this country, and considers the offense greater because we do not, in many of the States, permit such goods to be sold at home. This statement admits of question, but the whole matter in its international aspect is worthy of attention.

IT is trite enough to say that if organized labor was as wisely led as its basic principles are just and humane it would always win its case. Unfortunately, unwise leadership, acting upon false premises founded on sophistical reasoning, too often leads the rank and file of organized labor into doing very foolish and unjustifiable things, one of the latest of which is the project of boycotting national bank notes. Mr. Sovereign himself is unable to give any sound reasons for such a silly movement, and the conclusion is inevitable that it is the result of the "gold bug" mania, of which he has long been a victim. Every sensible man will regret that bank notes are not full legal tender, for the time being, at least. They are good money, however, and workmen who refuse to accept them when offered should be made to bear some part of the inconvenience to which such nonsense gives rise.

Watermarks.

BY DANDY.

The Chamber of Commerce of Manchester, England, according to an exchange, has established a testing house, "to ascertain the true condition, weight, length and other physical properties of such articles as the board of directors may from time to time determine, and to issue certificates as to the results of the tests." The first matters taken up will be to ascertain the amount of moisture contained in samples of cotton and wool, with the determination of their true trade weight, and to test the true count length, twist and strength of yarns.

That is interesting. The second matter to be taken up may possibly be to ascertain the amount of moisture in Manchester bagging, so that hereafter lots coming forward will be accompanied by a Chamber of Commerce certificate. Wonder how that would work?

A New York man who is connected with the paper and paper stock trade was giving an account a few days ago of a trip he made to the northern part of the State. "We had a most delightful time; at one meal they served a most delicious dish. They call it 'spiked pike'—no, no! 'piked plank.' That doesn't seem right either. It must have been 'spiked plank,' but then there's no pike in that." At this point friends interposed and assured him that what he really wanted to say was "planked pike."

The word "cuckoo" has been used as a political term for some time, but a paper man has brought it into the trade, and his definition of the term is as follows: "A cuckoo is a man who catches a Western paper dealer here in town, arrests him for an old debt, gets the money, and then sells him six carloads of job lots."

This seems to be right. A man who can give a fellow the "marble heart" on an overdue account and immediately thereatter present him with the "merry hand" on the new one, with an arrest in between, is certainly a "cuckoo," a "dandy," or anything else you want to call him. At least the record will stand thus until some other man "goes it better."

The fellow who wants to discount it will have to put his "think box" at work very lively.

The pulp board men and the strawboard men each have now a new toy with which to amuse themselves. Each have formed a national selling company; prices have been put to the point which THE JOURNAL announced some time ago, and everything is lovely, &c.

It will so remain until some man cuts—the string. Anybody can guess as often as he pleases, and while he is at it he might also name the time when the string will be severed.

"How does the price of soda fibre suit me? Why, tip-top! It is not a bit too low," and he never wrinkled his face when he said it, either. It is pretty warm weather to make such a rash statement, and it is hard to tell what he will say when December frosts come to hand.

A paper maker celebrated his birthday this week by giving a little "blowout" to a few—a very few—of his friends. The banquet was a success, but the fact remains that neither the host nor the guests can now tell the number of the birthday; but it is all right, because they can have another next week or next month if they like.

Trade Talks.

Henry M. Robertson, of Henry M. Robertson & Co., 319 Broadway, New York—Since the Chicago Fair, or about two years ago, orders have not been so free until recently. Then we had to go out and seek them, now they come to us. Prices, as you know, are very much cut. The prices of box boards, in which we are much interested, were very low until the combination was formed, and after that they stiffened up a great deal and are now much better than they were. In asbestos materials, where there is no regular schedule, prices depend very much upon circumstances and may vary about 3 cents on the price given to one party and that given to another. These circumstances include the size of the order, whether he is a regular customer or not, whether we are full of orders and don't need any more, or whether the demand is large or small, so that we want or do not want, or can or cannot fill all of the orders we get. I think that no one can complain at that. Another thing which has a bearing upon prices with such people as us, acting as we do as agents of others, is whether orders are filled from the mill or whether they are for goods which have been carted to the warehouse and must be carted from it. Another reason also is that in securing an order there are large contingent expenses which cannot be foreseen, and for which provision must be made. For instance, we might feel compelled to go to Holyoke or some other place for an order. The party might say that he did not intend to place it before two or three days. Now that would entail either our staying there during that two or three days or returning home only to make another trip. Now, these unforeseen expenses cannot very well be charged against the companies for which we act, and so we simply assume it ourselves and say no more about it. That ends it right there and keeps all smooth sailing. I have now been connected with the paper trade for eighteen years, and have gradually extended our business in territory, and have added new lines from time to time, one of the latest being the metal edge box machine. We also handle a fine line of Scotch papers, such as gummed papers, label, envelope, map and toy book cloths, lithographers' and printers' enameled papers of the surface coated kind, also pulp tinted papers and embossed papers for fancy box makers. We also handle jute fibre boards, particularly adapted to use with the metal edge box machine; and we also represent a Pennsylvania firm which manufactures asbestos materials—the asbestos coming from the Sherbrooke district in Canada—which include roofings, fire and water proof sheathing, fireproof and acid-proof asbestos mill board for packing flanges, steam pumps, heated joints, &c.; sheathing for lining buildings, refrigerators, covering steam pipes, hot air flues, &c., boiler coverings and stove linings, and asbestos goods in all varieties, and for many uses, one of the latest for which it is used being for condensation purposes. We also handle corrugated bottle packing paper. It is said by some that asbestos has nothing to do with the paper trade, but it has, for paper is made out of asbestos, and asbestos boiler and steam pipe coverings are now looked upon with great favor by the fire insurance companies and in some parts of the country have a great bearing upon fire insurance rates. We have also been looking recently after the export trade and find considerable of a market abroad for American goods. With the present state of business the foreign market seems to be necessary to the paper trade and it is one which must be closely studied in order to bring forth results. This is necessary, as business is already divided into specialties, and it will no doubt become more and more evident as business becomes more specialized. Until positive results are obtained, experiments with the export trade are rather expensive, but the main difficulty is the educative process which it is necessary to go through. Foreigners have to be educated to our ways and our methods and our goods, and to be made to understand that the American article is just as good as that which they have been accustomed to use. A case in point occurred recently when a German wanted some strawboard, and a test was made before him to compare the qualities of the American with the German product. The American article was shown to be made of pure straw, and it was sweet and non-odorous, while when the German board was dissolved it was found to be mainly composed of clay and it had a bad smell. The American manufacturer must not delay in filling an order. If he receives a sample and an order for goods like sample, for instance, from Australia he must send goods as nearly like sample as he can. It is death to the order to wait until he can send him a letter explaining that he has not exactly what the buyer wants, but something just as good, when he probably needs it for immediate use. We are also extending the sale of our goods in this country, and they are now being sold as far west as California.

Changes, Removals and New Firms.

The *Daily Record*, Harlan, Ohio, is a new paper.

The *Daily Tribune*, Warrensburg, Mo., is a new paper.

S. O. Riggs, publisher, Indianola, Ia., has sold out.

C. J. Lukens, printer, Oskaloosa, Ia., has sold out.

J. L. Greenlee, publisher, Blair, Neb., has sold out.

The *Daily Sentinel*, Le Mars, Ia., is a new daily paper.

W. H. H. Gorham, printer, Cleveland, Ohio, has sold out.

Chas. L. Miller, publisher, Rock Valley, Ia., has sold out.

Edmonton, Alberta, N. W. T., has a new paper called the *Herald*.

Rice & Behre, printers, Walterboro, S. C., have dissolved partnership.

F. R. McAtee, publisher, Chester, Ill., has sold out to Jas. A. Mattock.

George Weber has bought out Charles Gardner, stationer, Oxford, N. J.

Thomas H. Averett, bookseller and stationer, Danville, Va., has sold out.

Frank Metcalf, stationer, &c., Blyth, Ont., has sold out to John Metcalf.

John F. Barnett, printer, Onward, Ind., has removed to Gas City, same State.

B. Van Geem, dealer in wall paper, &c., Wilmette, Ill., has gone out of business.

Wykes & Burns, booksellers and stationers, Grand Rapids, Mich., have sold out.

The Progress Publishing Company, Nebraska City, Neb., has been incorporated.

A. W. Barnum, bookseller, stationer, &c., San Bernardino, Cal., has resumed business.

Huntley Brothers, printers, Duluth, Minn., have been succeeded by Julius C. Syfford.

The Land of Sunshine Publishing Company, Los Angeles, Cal., has been incorporated.

Howe & Durbin, publishers of *Facts*, Redlands, Cal., have been succeeded by Moore & Durbin.

Tuttle, Morehouse & Taylor, printers, New Haven, Conn., have admitted Arthur S. Barnes to partnership.

Gould & Bonsteel is the style of a new firm which succeeds Cooley & Gould, stationers, &c., Batavia, N. Y.

T. M. Emerick has purchased the stationery and wall paper store of F. H. De Graff & Co., Canandaigua, N. Y.

The Laredo *News* Publishing Company, Laredo, Tex., has been incorporated by Q. Villegas and others. Capital stock, $1,000.

The Hour Book Publishing Company, Cumberland, Md., has been incorporated. Chas. T. Lowndes, president; H. K. Duke, secretary-treasurer.

Charles K. Haynes who carried a line of fine papers at Lyons, N. Y., has removed to Batavia, N. Y., where he has bought the stationery business of Smith Brothers.

George S. Wilson and Fred Warde have formed a copartnership under the style of the Wilson & Warde Stationers' Supply Company, at Jacksonville, Fla., to deal in stationery, &c.

The Empire Paper Company, Elizabeth, N. J., has been incorporated to manufacture paper, roofing material, &c. Capital stock, $26,000; incorporators, W. H. Rankin, John L. Goodenough, Charles F. Camp, Charles E. Lee and P. H. Gilhooly.

The Commercial Exchange, New York, has been incorporated to do a printing, publishing, &c., business. Capital stock, $20,000, and directors, T. J. Van Horen, John E. Andrews, Robert B. McIlvain, John K. McDonald and John H. Jacobs.

The Bergstrom Printing Company, Atlanta, Ga., has applied for incorporation. Capital stock, $5,000, and incorporators, M. W. Bergstrom, O. M. Bergstrom, W. A. Teat and N. G. Sandberg. The company will do only a fine printing and bookbinding business.

Hunter, Rose & Co. (Limited), successors to Hunter, Rose & Co., Toronto, Ont., have been incorporated to do a printing, binding and stereotyping business. Incorporators: George MacLean Rose, Daniel Alexander Rose and William Manson Rose. Capital stock, $50,000.

The *Monthly Illustrator* Publishing Company has been incorporated to publish a magazine known as the *Monthly Illustrator* in New York city. Capital $50,000. The directors are Harry C. Jones and W. F. Trevett, of New York, and Samuel D. Compton, of Brooklyn.

Failures.

E. C. Milgate, dealer in wall paper, &c., Utica, N. Y., has been closed by the sheriff.

Thompson, Slason & Co., printers and publishers, Chicago, Ill., have made an assignment.

Samuel L. Gross & Son, dealers in cotton and woolen rags, Syracuse, N. Y., have been closed by the sheriff.

Joseph T. Davey, stationer, &c., Newark, N. J., has made an assignment to William Huff. Assets, $5,005; liabilities, $5,300.

The inventory and appraisement of the assigned estate of Grattan G. Williams, individually and trading as G. G. Williams & Co., paper dealers, Philadelphia, Pa., transferred to Alexander Balfour for the benefit of creditors on July 20 last, has been filed in court. The appraisement shows book accounts valued at $10,165.74, and also a large amount of goods which, the appraisers state, are claimed by other firms and companies as consigned goods which were not and are not the property of the consignor. A schedule of these owners and the value of the goods follows: The Singerly Pulp and Paper Company, $11,984.79; Valley Paper Company, $2,948 51; Tytus-Gardner Paper Manufacturing Company, $1,537.72; Morgan Envelope Company, $1,040.86; Hurlbut Paper Manufacturing Company, $855.34, and Wrenn Paper Company, $400.29. Total, $18,767.51.

The schedules of I. Gilman, paper dealer, New York, who failed some time ago, show liabilities $27,901.60; nominal assets, $16,525.93 and actual assets of $10,524.25. Among the creditors are: Preferred—I. Weinberg, $1,200; National Paper Bag Company, $11,587.18, of which $11,100 is secured by third mortgage on 108 Johnson street, Brooklyn; Jefferson Paper Company, $3,876.65, of which $8,000 is secured by same mortgage. Unpreferred—Gould Paper Company, $1,636.13; John I. Andrews, $1,955.29; Fox & Curtis, $968.76; Watertown Paper Company, $794; Paper Commission Company, $829.05; Remington Paper Company, $360.42; W. Bonfield, $303.37; H. C. Kelley, $201.25; J. H. Estes, $108.72; Tompkins & Tuthill, $388.85; F. W. B. McCreedy, $582.72; Hager Straw Board and Paper Company, $478.94; Consolidated S. O. S. Bag Company, $118.21; Cleveland Paper Company, $142.40; Robertson & Harmon, $223.91; Racquette River Paper Company, $411.70; Castleton Paper Company, $100; National Candy Mould and Manufacturing Company, $138.54; A. H. Hart & Co., $105.39.

Mortgages, Etc.

[In the appended list R. signifies a renewal of a pre-existing mortgage; B. S., bill of sale; T. D., trust deed, and Real, a mortgage on real estate.]

EASTERN STATES.

Mortgagor.	*Amount.*
Haswell & Pruneau, Biddeford, Me.	$300
Z. A. Hubley, Worcester, Mass.	3,000
J. Kerschner & Son, Worcester, Mass.	1,000

MIDDLE STATES.

Clyde D. Allen, Binghamton, N. Y.	760
C. H. Morse & Son, Rochester, N. Y. (R.)	493

WESTERN STATES.

H. C. Stoddard, Los Gatos, Cal.	800
Ed. B. Cabeen, Alexis, Ill.	525
Chas J. Johnson, Chicago, Ill	1,000
J. I. Migdalski, Chicago, Ill	150
Hagel Brothers, Chicago, Ill.	3,733
M. F. Field, Watseka, Ill.	250
Wm. S. Ensign, Union City, Ind.	1,400
Young & Rockendorf, Melbourne, Ia.	106
E. R. Button, Norwalk, Ia.	150
L. Plate, Rock Valley, Ia. (Real)	1,000
M. F. and Wm. A. Bell, Sigourney, Ia.	1,063
N. B. Marsh, Waverly, Ia.	410
A. B. Hoffman, Harper, Kan. (R.)	1,450
John T. Doan, Detroit, Mich.	400
J. H. Parsell, Grand Rapids, Mich.	1,000
R. E. Haward, Kansas City, Mo. (B. S.)	300
O. H. Kent, Auburn, Neb.	100
J. E. Tracy, Humboldt, Neb.	800
A. J. Fleming, Plattsmouth, Neb.	185
The Delaware Paper Company, Delaware, Ohio	2,800
S. Rosenfeld, Toledo, Ohio	205
John B. Shepler, Toledo, Ohio (Real)	900
Perry & Welch, Perry, Okla. Ter. (Real)	500
Palmer & Hitchcock, Sioux Falls, S. Dak.	—

LIENS DISCHARGED.

C. A. Middleton, Harrisonville, Mo.	1,200
A. D. Pelton & Co., Toledo, Ohio	1,600

Fires.

W. F. Thompson, publisher, Sprague, Wash., has been burned out. Loss, $1,300; partly insured.

Brown & Bailey, paper box manufacturers, Philadelphia, Pa., were burned out on August 12. Loss, $150,000.

Ginn & Co., publishers, Boston, Mass., have been damaged by fire to the extent of $40,000. Fully insured.

Gray & Ramsey, publishers, Central Lake, Mich., have been damaged by forest fires. Loss, $1,400; no insurance.

The bleaching house of the O. I. Newton's Sons Company, Sparta, Wis., was burned to the ground on August 6. The fire originated in a pile of baled straw, and is supposed to have been caused by a locomotive which was switching in the mill yards at the time. The loss is about $4,100, covered by insurance.

Sparks from a locomotive set fire to baled straw which was stacked up against the north end of O. I. Newton's Sons Company's paper mill, Sparta, Wis. The bleaching house was burned. Loss, $4,000; fully covered by insurance.

Personals.

Arthur Smalley, of E. Butterworth & Co., Manchester, England, arrived here last Saturday on the Lucania.

Herbert Taylor, who has been superintendent of the Belem Paper Mill, in Mexico, for nine years, has returned and is visiting his son at East Hampton, Mass.

In Town.

C. H. Milliken, Portland, Me.; Charles N. Sherman, Watertown, N. Y.; D. W. Mabee, Ballston, N. Y.; F. L. Stevens, North Hoosick, N. Y.; C. Lipp, Manchester, England, and B. F. Reist, Tyrone, Pa.

The National Pulp Board Company.

The National Pulp Board Company, which is to sell the product of the pulp board mills of the country, has at last started in business, with offices at No. 120 *Times* Building, New York. The officers of the company are J. W. French, president; J. P. Lewis, vice-president; E. B. Dennison, treasurer; H. Egbertson, secretary.

The names of the mills whose product will be marketed by this company, which is formed of individual owners in these mills, are as follows: Androscoggin Pulp Company, Indiana Pulp and Paper Company, Kennebec Fibre Company, Kokomo Fibre Company, J. P. Lewis Company, Lewis & Slocum, Marion Paper Company, George W. Downes & Co., McEwan Brothers, Michigan Wood Pulp Company, National Metal Edge Box Company, Pioneer Wood Pulp Company, Sebago Wood Board Company, Thompson Pulp and Paper Company, Umbagog Pulp Company and Uncas Paper Company. It is expected that the National Folding Box and Paper Company, as well as two other concerns, will shortly come into the organization. The final touches were put to the scheme at meetings held this week at the Murray Hill Hotel and the company's office.

Market Review.

OFFICE OF THE PAPER TRADE JOURNAL, FRIDAY, August 16, 1895.

THE MONEY MARKET.—The stock market was quiet. Call loans on stock collateral were dull and easy at 1 per cent., and there were large offerings by banks as well as by private bankers. Time loans were easy and inactive, the ease of the call branch of the market causing business to be largely confined thereto. It is believed that an improvement in the demand would bring brokers large amounts to place for out of town institutions. Quotations are 1½ per cent. for thirty days, 2 per cent. for sixty days, 2½ per cent. for ninety days to four months, and 2¼@3 per cent. for five to seven months on good marketable collateral. Commercial paper rates are 3@3¼ per cent. for sixty to ninety day indorsed bills receivable, 3½@4 per cent. for four months' commission house names and 4@4½ per cent. for prime four months', 4¼@4¾ per cent. for prime six months' and 5@6 per cent. for good four to six months' single names. There are signs of an improvement in the supply of paper. Foreign exchange was dull and firm. Posted rates were $4.90 for sixty days and $4.91 for sight. Actual rates were $4.89@4.89½ for sixty days and $4.90@4.90½ for sight.

THE PAPER TRADE.—At the West there is yet the cry of short water, but at other points the streams are in better condition. The mills, as a rule, have a very fair supply of orders, and in News especially the demand is excellent. The Pulp Board men have started their new organization—the National Pulp Board Company—in business, with headquarters in this city. The Straw Board men have also got their new company at work to sell their product, with headquarters in Chicago.

JUTE BUTTS.—The market is quiet and unchanged.

WOOD PULP.—The conditions reported last week continue to govern the Ground Wood market, and with production restricted it is a favor to get supplies.

WOOD FIBRE.—There is no change to be noted in the Wood Fibre market. Domestic Bleached Soda is quoted at 1¾@2¼c., as to quality. Domestic Sulphite is quoted at 1¾@2¼c., as to quality, for Unbleached, and 3c. for Bleached. Foreign grades are quoted as follows: Unbleached Pine, soda process, 2.60@2.75c.; Bleached, same process, 3½@3.90c.; Unbleached, sulphite process, —@3.15c.; Bleached, do., 3½@4c.; Bleached Straw Pulp, 3.80c. This week no Chemical Fibre was imported.

FOREIGN RAGS AND PAPER STOCK.—There is a constant sale of small lots, but the business done is not important. It is chiefly to supply present needs, and no forward contracts of material size are made. Imports for the week aggregated 1,596 bales, being 867 bs. rags and 729 bs. manillas. Ports of shipment and quantities are as follows: Antwerp, 125 bs. manillas; Bremen, 15 bs. manillas; Glasgow, 6 bs. rags; Hamburg, 160 bs. rags; Hull, 427 bs. rags, 188 bs. manillas; Leghorn, 177 bs. rags; Liverpool, 229 bs. manillas; London, 97 bs. rags; Stettin, 172 bs. manillas.

DOMESTIC RAGS.—There is a steady trade which moves a moderate volume of stock, but there is no snap to the business. Prices hold their own on well-known packings.

BAGGING, &c.—The market for Gunny remains quiet, and quotations range from 97½@1.02½c., no sales being reported. Mixed Bagging is pretty well cleaned up on spot, and prices rule steady. Manilla imports for the week aggregated 729 bales, being 125 bs. from Antwerp, 15 bs. from Bremen, 188 bs. from Hull, 229 bs. from Liverpool, and 172 bs. from Stettin.

OLD PAPERS.—Some grades, such as Shavings and Manillas, continue to be in good call. We quote: No. 1 Hard White Shavings, 2.15@2½c.; No. 1 Soft White do., strictly free from wood, 2@2 05c; Soft White, do., ordinary, 1⅞@2c.; Old Ledgers, 1⅞c.; Solid Printed Books, 1¼c.; Mixed Shavings, No. 1, 1@1½c.; Mixed Shavings, No. 2, ¾c.; Extra No. 1 Manillas, 90c.; No. 1 Manillas, ordinary, 75c.; No. 2 Manillas, 60c.; Light Book Stock, 60c.; Folded News (overissues), 50@55c.; Mixed Papers, 35c.; Commons, 25@30c.; Straw Clippings, 45c.; Binders' do., 45c.

STRAW.—The market is quiet and easy. We quote: Long Rye at 55@60c.; Short Rye at 40@45c.; Wheat at 40c.; Oat at 45c.

ROSINS.—Low grades sold very well, but pale grades were quiet. Prices were steady. We quote: Common to Good Strained, $1.75@1.80; E, $1.85@1.90; F, $2; G, $2.05@2.10; H, $2.15; I, $2.40; K, $2.55@2.60; M, $2.80; N, $3; W G, $3.20.

CHEMICALS.—There is not any material change in the market for paper makers' chemicals. Bleaching Powder is well cleaned up on spot, and values are firm at 1 80@1.90c. Sal Soda has been in good movement. Alkali for forward delivery is firmer, but Caustic Soda has been rather slow. During the week there have been sales of Bleach at 1.80@1.87½c.; Soda Ash at 1⅜c.; Caustic Soda, 2.10c., and Alkali, .90@1.05c.

CHINA CLAY.—The market presents no new features. Trade is fair, but limited to jobbing proportions, as in the present dull state of consuming branches buyers are not inclined to add to their holdings. The market rests on a steady basis, however, and we have to repeat our quotations of $11@16 per ton, as to quality and size of order.

TWINES.—There is a very fair business in progress. We quote: Sisal Hay Rope, 5½c.; Sisal Lath Yarn, 5c.; Jute Ready, 5@6c. Twines—Jute, 18, 10½@11c.; 24, 10@10c.; 36, 9@9½c.; Jute and Hemp, 18, 13@14c.; 24, 12½@13½c.; 36, 12@13c.; Hemp, 18, 16c.; 24, 15½c.; 36, 15c.; Marlines, Jute, 4½, 9c.; 6, 8½c.; 8, 7½c.; Jute and Hemp, 6, 11c.; 8, 9c.; American Hemp, 4½, 14c.; 6, 13c.; 8, 12c.; Russian Hemp, 4½, 14c.; 6, 13c.; 8, 12c.

COAL.—The market is irregular and low, no harmony basis having yet been reached.

EDWIN BUTTERWORTH & CO.,
MANCHESTER, ENGLAND,
PACKERS OF ALL KINDS OF
Paper Stock, Cotton Waste and Buffalo Sizing, Wood Pulp, Moist and Air Dry Pulp, Soda and Ground Pulp,
P 83 GUNNY BAGGING, &c.
OFFICE IN NEW YORK:
Vanderbilt Building, No. 132 Nassau Street.
JAMES PIRNIE, A. S. DEMAREST, } Managers.

WATERBURY
Felts and Jackets.
MANUFACTURED BY
H. WATERBURY & SONS CO.,
ORISKANY, N. Y.
Adapted to *every* grade of paper from the *finest* to the *coarsest*.
The Largest Manufacturers of Paper Makers' Felts in the World.
Our wet machine or pulp felts are *unequaled* for *durability*.
For WRITING and LEDGER PAPERS We warrant a felt equal to anything imported.

PRICES CURRENT.

NEW YORK MARKET.

Paper Market.

DEALERS' SELLING PRICES.

Ledger and Record	$0.16	@	$0.21
Flat Caps, superfines	11½	@	14
Flat Caps, fines	11	@	13
Flat Caps, engine sized	7	@	9
Blotting, American	8	@	12
Blotting, English	17	@	....
Book, super sized and calendered	5	@	8
Book, super sized and tinted	5	@	8
Book, extra machine finish	5	@	....
Book, machine finish, low grade	4½	@	5
News	2½	@	3
Poster	3	@	....
Hanging, superfine, No. 1	8	@	10
Hanging, superfine, No. 2	6	@	8
Hanging, machine satin	4	@	4½
Hanging, white blank, No. 1	4	@	4½
Hanging, curtain	3¾	@	4
Hanging, brown	2¾	@	3
Colored papers, double mediums	6½	@	8
Colored papers, glazed medium	7½	@	8½
Colored papers, tobacco	8½	@	9½
Colored papers, tissues, 20×30, ℔ ream	1.10	@	1.35
Tissues, black, 20×30, ℔ ream	1.40	@	1.50
White tissue, 20×30, ℔ ream	60	@	80
Manillas, Flour sack, cream	10½	@	....
Manillas, Flour sack, drab	9½	@	11
Manillas, Rope, unbleached No. 1	9½	@	11
Manillas, Rope, unbleached No. 2	7½	@	9
Manillas, No. 1, light weight	6½	@	6¾
Manillas, No. 1, heavy weight	6¾	@	6½
Manillas, No. 2	5	@	6
Manillas, Bogus	2¾	@	3¼
Wrapping Parchment	16	@	....
Tissue Manillas, full count, weight and size, 24×36, other sizes in proportion	55	@	60
Hardware, light colored, No. 1	4¼	@	....
Hardware, No. 1, glazed, tarred	4½	@	....
Hardware, No. 1, glazed	4	@	....
Binders' Boards, ℔ ton, No. 1	70.00	@	90.00
Binders' Boards, ℔ ton, No. 2	30.00	@	40.00
Strawboards, air dried, No. 1, ℔ ton	40.00	@	....
Strawboards, steam dried, No. 1, ℔ ton f. o. b. mill	....	@	....
Straw Wrapping, basis, 15×20, 15½ lbs., 20 sheets—			
36×40, from 38 to 42 lbs. ℔ rm.	65	@	....
30×40, from 30 to 34 lbs. ℔ rm.	....	@	52
24×36, from 24 to 26 lbs. ℔ rm.	....	@	48
22×32, from 24 to 26 lbs. ℔ rm.	45	@	....
20×30, 21 lbs., ℔ rm.	....	@	34
20×30, from 14 to 17 lbs. ℔ rm.	26	@	....
16×22, from 12 to 13 lbs. ℔ rm.	23	@	....
18×28	....	@	24
15×20, 10 lbs. ℔ rm.	....	@	17
15×20, from 7 to 8½ lbs. ℔ rm.	....	@	13
14×18	....	@	12
12×16	....	@	11
12×15	....	@	10
Straw Wrapping, ℔ lb., heavy weight	1.75	@	1.85
Straw Wrapping, ℔ lb., light weight	1¾	@	....
Cigarette, Straw Tissue, per case of 100 boxes, 50 books to the box, 200 sheets to the book	21.00	@	30.00
Tea Papers, 16 sheet quires—			
12×18	....	@	14
14×20	....	@	18
Card Middles, ground wood	5¾	@	6¾
Card Middles, long fibre wood	8¼	@	9
Card Middles, rag and wood	6	@	9
Pulp Lined Boards, single manilla, No. 100 and heavier	42.50	@	....
Pulp Lined Boards, double manilla, No. 100 and heavier	47.50	@	....

Woolen Rags.

Comforter Stock	....	@	....
White Woolens	8	@	....
Blue Gray Stockings	7	@	8
White Stockings	10	@	12
Blue Flannels	6	@	....
Reds, old	5½	@	6
Reds, new Shirt Clippings	15	@	16
Mixed Softs, free of Carpets	4½	@	5½
Seamed Cloth	....	@	3½
Skirted Cloth	2½	@	....
New Cloth Clips	7	@	9
New Satinets, clean stock	1¼	@	1½
Satinets, old	65	@	75
Seams	1	@	1¼
Delaines, stripped for extract	1½	@	2
Blankets, Woolen	2½	@	2¾
Wool Carpets	1½	@	2
White Linseys	5	@	6
Mixed Linsevs	75	@	1

Rags, Rope and Bagging.

White Shirt Cuttings, No. 1	4¼	@	....
Mill Assorted Whites	3¼	@	3¾
Unbleached Muslins	4⅝	@	4¾
City Whites, No. 1	3	@	3¼
New Seconds, light	2¼	@	....
New Seconds, dark	1¾	@	2
No. 2 Whites	¾	@	1.15
Cotton Canvas, No. 1	3	@	....
Linen Canvas, No. 1	....	@	2¼
Country Mixed, free of Woolens	60	@	....
Seconds (City)	....	@	....
Colors, ℔ 100 lbs	....	@	....
Manilla Rope	....	@	2
Manilla Rope, tarred	....	@	....
Gunny Bagging, No. 1	1.10	@	1.20
Mixed Bagging, No. 1	⅞	@	1
Burlap Bagging, No. 1	1.10	@	1.15
Kentucky Hemp Bagging	....	@	....
Tar Shakings	1	@	....
Hemp Twine Stock	....	@	....
Jute Waste	¼	@	1¼

Shavings and Old Paper.

White Collar Cuttings	3	@	....
White Envelope Cuttings	3¼	@	....
Hard White Shavings, No. 1	2¾	@	3
Soft White Shavings, strictly free from wood	2.15	@	....
Soft White Shavings, ordinary	1¾	@	2
Mixed Shavings, part white	1	@	1½
Ledger and Writing	2	@	2.10
Solid Stock	....	@	1¼
Book Stock, No. 1 light	....	@	1¼
Old Newspapers	40	@	....
Manillas No. 1	....	@	1.15
Manillas No. 2	80	@	....
Mixed Manillas	60	@	....
Hardwares, No. 1	65	@	....
Mixed Papers	40	@	....
Commons	25	@	30
Binders' Board Cuttings	50	@	....
Strawboard Cuttings	45	@	50

English Rags, &c

New Cuttings, cotton	5	@	5½
London Fines, cotton	3⅞	@	4
Outshots, cotton	2¾	@	3
Seconds	1⅝	@	1.65
Thirds	1¼	@	1⅜
New Print Tabs	2¾	@	3
Checks and Blues	2¼	@	2½
Light Prints	1½	@	1¾
Light Fustians	2	@	2½
Dark Fustians	1¾	@	1⅞
Black Calicoes	1¼	@	1¼
First Canvas Linen	3½	@	4
Second Canvas Linen	3	@	....
Gunny Bagging, No. 1	1	@	1.02½
Mixed Bagging, No. 1	80	@	85
Burlaps Bagging, No. 1	....	@	1.20
Rope, Manilla	1.95	@	2
Rope, Manilla, tarred	....	@	2
Jute Threads	....	@	1⅞
Clean Jute Ropes	2	@	2½
Mixed Rope	1½	@	1¾
Flax Tow	1¾	@	1⅞

English Old Papers and Shavings.

Hard Shavings, No. 1	2	@	....
Soft Shavings, No. 1	2¼	@	2⅜
White and Colored Shavings, No. 1	1¾	@	1⅞
White and Colored Shavings, No. 2	1	@	1¼
Cream Post Shavings	2½	@	....
Paper Collar Cuttings	....	@	2
Briefsand Letters	1⅝	@	1¾
Books and Pamphlets	1.10	@	....
Old Newspapers	....	@	....
Broken News and Letters	⅞	@	1
Old Blank Books	2¼	@	2½
White and Buff Railway Sheets	1¼	@	....

Hamburg Rags, &c.

N S C, New Shirt Cuttings	....	@	4¼
S P F F F, No. 1 Linens	....	@	3¼
S P F F, No. 2 Linens	....	@	3½
S P F, No. 3 Linens	2	@	2¼
F G, No. 4 Linens	....	@	2
F F, No. 5 Linens	1¾	@	1.85
Extra Fine Blue Linen, light color	2	@	....
L F B, Blue Linens	2¼	@	....
C S P F F F, No 1 Cottons	....	@	3½
C S P F F, No. 2 Cottons	....	@	2¾
C S P F, No. 3 Cottons	1¾	@	....
C C C, Colored Cottons	....	@	25
C F X, Low grade Cottons	....	@	75
Extra Fine Blue Cottons	....	@	1½

Pulps and Fibres.

Ground Wood, domestic, delivered	1	@	1.35
Ground Wood, foreign, ex dock	....	@	....
Soda Fibre, domestic, unbleached	....	@	....
Soda Fibre, domestic, bleached	....	@	2½
Soda Fibre, foreign, unbleached	2.65	@	....
Soda Fibre, foreign, bleached	....	@	....
Sulphite, domestic, unbleached	1¾	@	2¼
Sulphite, domestic, bleached	3½	@	....
Sulphite, foreign, unbleached	2¼	@	3⅜
Sulphite, foreign, bleached	....	@	....

Japanese Rags.

Blues, Hiogo, ex store	1.30	@	....

Chemicals, Coloring Materials, &c

Alkali, 58 ℔ cent	1	@	1.20
Alum, lump	1.65	@	....
Alum, ground	1.75	@	....
Alum, Keystone	1¾	@	1¾
Alum, Diamond	....	@	2¼
Alum, pearl	2¾	@	2¾
Alum, porous	2¾	@	2¾
Alum, Merrimac porous	2	@	....
Aluminous Cake	....	@	1¾
Anti-Chlorine	....	@	2¾
Bichromate Potash, American	....	@	10
Bleaching Powders, spot	1.85	@	1.95
Cambridge Ochre	11.25	@	....
Caustic Soda, 60 ℔ cent	2.20	@	2.30
Clay, China, English, ℔ ton	12.50	@	17.00
Clay, China, "Star"	12.50	@	....
Clay, China, "Keystone"	10.75	@	....
Clay, South Carolina, ℔ ton	9.50	@	10.00
Clay, Terra Alba, French, ℔ cwt	1.00	@	1.12¼
Clay, Terra Alba, American, No. 1	95	@	1.00
Corn Starch	3	@	3½
Copperas, American	....	@	80
Extract Logwood	9½	@	....
Mineral Pulp	10.25	@	....
Orange Mineral	....	@	9¼
Potato Starch	4½	@	4¾
Prussian Blue, dry	20	@	35
Prussiate Potash, American	....	@	24½
Rosins, common to good strained, ℔ bbl	1.75	@	1.80
Rosins, E, ℔ bbl	1.85	@	1.90
Rosins, F, ℔ bbl	2.00	@	....
Rosins, G, ℔ bbl	2.05	@	2.10
Rosins, H, ℔ bbl	2.15	@	....
Rosins, I, ℔ bbl	2.40	@	....
Rosins, K, ℔ bbl	2.55	@	2.60
Rosins, M, ℔ bbl	2.80	@	....
Rosins, N, ℔ bbl	3.00	@	....
Rosins, W G, ℔ bbl	3.20	@	....
Sal Soda	....	@	....
Soda Ash Caustic, 48 ℔ cent	1.60	@	1.65
Soda Ash, carbonated, 48 ℔ cent	1.57½	@	1.70
Soluble Blue	40	@	55
Spanish Brown	½	@	1
Sugar Lead, white	12	@	....
Sugar Lead, brown	7	@	....
Sulphate of Alumina	....	@	2¼
Sulphuric Acid, 66 ℔ cent	1	@	1¼
Ultramarine, blue	14	@	17¼
Venetian Red	1	@	1½
Vitriol, blue	5½	@	5¾
Yellow Ochre Rochelle	1.35	@	1.50

BOSTON MARKET.

Paper Stock.

White Rags, No. 1	3½	@	3¾
No. 2 Whites	2½	@	2¾
Common Seconds	1⅞	@	2¼
Thirds and Blues	1⅜	@	1⅝
Southern Mixed Rags	80	@	90
Colors, country	½	@	¾
Colors, city	25	@	30
New Calicoes, light	1¾	@	1⅞
New Calicoes, dark	1	@	1½
Shirt Cuttings, best	3⅞	@	4¼
Shirt Cuttings, good	3¼	@	3¾
Shirt Cuttings, unbleached	3½	@	3¾
Shirt Cuttings, unbleached No. 2	2	@	2½
Shirt Cuttings, cheviots	2¾	@	2¾
Overall Cuttings, blue	2½	@	2¾
Overall Cuttings, brown	1¾	@	1⅞
Shoe Rags, bleached	3¾	@	3¾
Shoe Rags, unbleached	3¼	@	3¾
Shoe Rags, brown	2½	@	2¾
Cotton Flannels, bleached	3	@	3½
Cotton Flannels, unbleached	3½	@	3¾
Corset Rags, drab	3½	@	3¾
Corset Rags, white	4	@	4½
Tailors' Seconds	1½	@	1¾
Tailors' Colors	20	@	25
Cotton Canvas	2¼	@	2¾
Cotton Canvas, No. 2	1¾	@	1¾
Linen Canvas	1½	@	1¾
New Canvas Cutting	3¼	@	3½
Insole Canvas	3	@	3¼
Print Papers, best	80	@	85
Folded News	40	@	45
Old Waste Papers	25	@	30
Manilla Paper, No. 1	1.10	@	1.15
Manilla Paper, good mixed	85	@	95
Manilla Paper, blues	65	@	70
Mixed Book Stock	95	@	1.00
Books and Pamphlets	1.10	@	1.15
Book Stock, light	65	@	70
Ledgers and Letters	1.85	@	1.90
Soft Book Shavings	1⅞	@	2¼
Hard White Book Shavings	2½	@	2¾
Leather Board Chips	70	@	75
Straw Chips	35	@	40
Shivey Bagging	1⅜	@	1½
No. 1 Factory Bagging	1.00	@	1.10
Burlap Bagging	1.00	@	1.10
Burlap Bagging, large pieces	1⅞	@	2¼
Kentucky Bagging	1	@	1¼
Mixed Bagging	½	@	¾
No. 2 Bagging	½	@	¾
Shakings, soft	½	@	¾
Tarred Shakings	1	@	1¼
Standing Rigging	2½	@	2⅝
Standing Rigging, foreign	2½	@	2¾
Bolt Rope	2	@	2.05
Oakum Junk, No. 2	1½	@	1⅝
Tarred Paper Junk	1.15	@	1.20
Tarred Paper Junk, inferior	¾	@	⅞
Manilla Rope	1¾	@	1⅞
Tarred Manilla	1½	@	1½
Hemp Strings	1	@	1¼
Sisal Strings	1.15	@	1.20
Wool Strings	1.10	@	1.15
Flax Tow	¾	@	⅞
Flax Waste	¾	@	⅞

New Papers.

Superfine Book	....	@	....
Fine Book	....	@	....
News, rag and wood	....	@	....
Manilla, Cream Rope	....	@	....
Manilla, No. 1, Rope	....	@	....
Manilla, Extra Jute	....	@	....
Manilla, Jute and Gunny	....	@	....
Manilla, No. 2	....	@	....
Manilla, Bogus	....	@	....
Hardware, No. 1, tarred	....	@	....
Hardware, No. 2	....	@	....
Hardware, red	....	@	....
Strawboards, air dried, ℔ ton	....	@	....
Strawboards, steam dried, ℔ ton	....	@	....
Straw Wrapping, heavy	....	@	....
Straw Wrapping, light	....	@	....
Binders' Boards, ℔ ton	....	@	....
Leather Board, Common, ℔ lb	....	@	....
Leather Board, counter	....	@	....
Leather Board, extra	....	@	....
Tar Boards, ℔ ton	....	@	....

Chemicals.

Alkali	92½	@	1.00
Aluminous Cake, currency	1¾	@	1⅞
Alum, American ground	1.65	@	1.70
Alum, American lump	1.60	@	1.65
Anti-Chlorine	2	@	2½
Bichromate Potash	9	@	9¼
Bleaching Powder	1.82½	@	2
Caustic Soda, 74 ℔ cent	2	@	2½
Clay, English, ℔ ton	13.00	@	17.00
Clay, American, ℔ ton	10.00	@	11.00
Copperas, ℔ lb	50	@	55
Extract Logwood	5½	@	10½
Lime, Rockland, ℔ bbl	85	@	90
Prussian Blue, ℔ lb	36	@	38
Prussiate Potash, yellow	18	@	18½
Prussiate Potash, red	36	@	38
Rosin, common strained, ℔ bbl	1.90	@	2.50
Rosin, Medium	2.20	@	3.00
Rosin, extra pale, ℔ bbl	3.00	@	4.50
Sal Soda, ℔ lb	70	@	75
Soda Ash, 48 ℔ cent. caustic	1.30	@	1.50
Soda Ash, 48 ℔ cent. carbonated	1.00	@	1.25
Soluble Blue	2.50	@	3.50
Sugar Lead, white	8¾	@	....
Sugar Lead, brown	5½	@	6
Sulphuric Acid, 66°	¾	@	1¼
Terra Alba, ℔ ton	9.00	@	15.00
Ultramarine, ℔ lb	7	@	25
Venetian Red, ℔ lb	1¾	@	2½
Vitriol, Blue	3¼	@	....
Yellow Ochre	½	@	1

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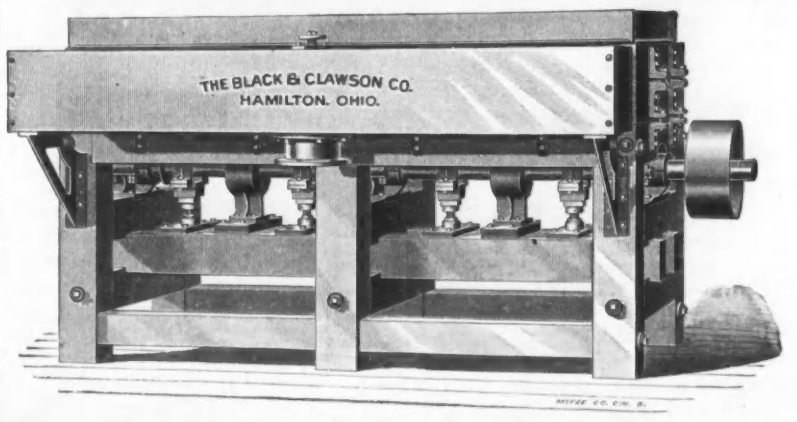

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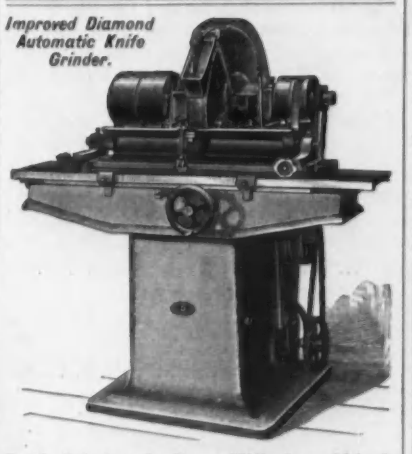

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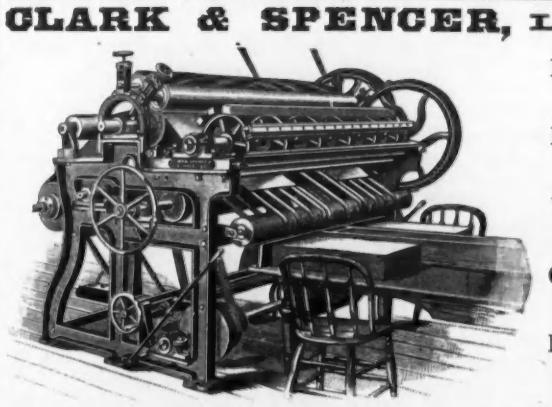

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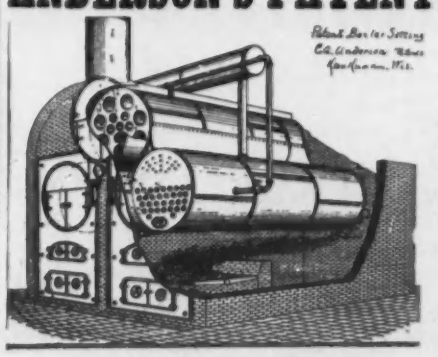

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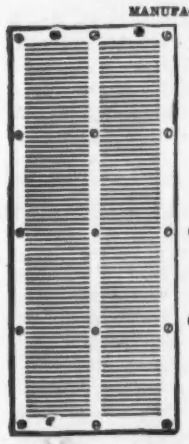

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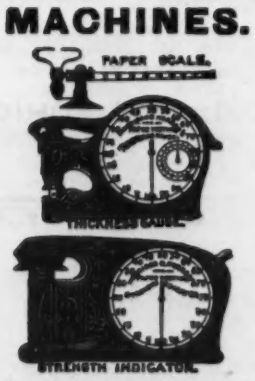

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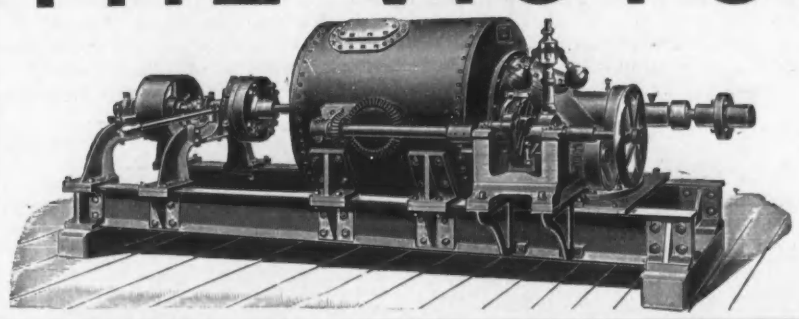

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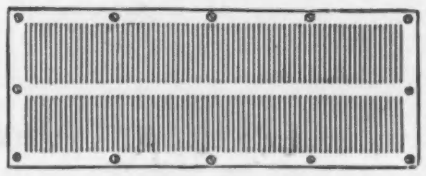

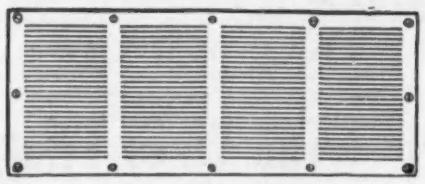

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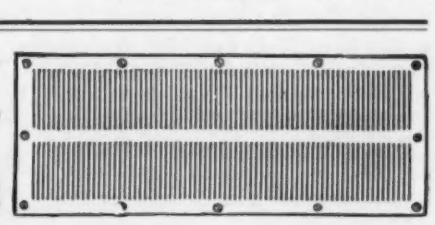

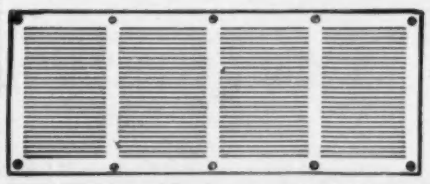

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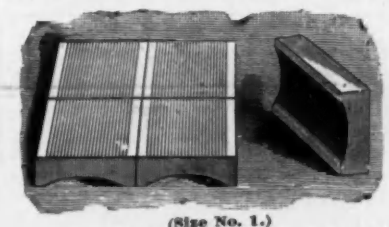

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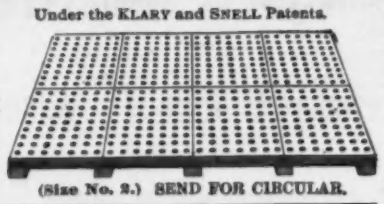

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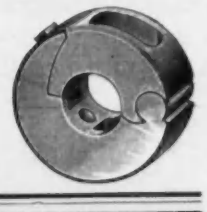

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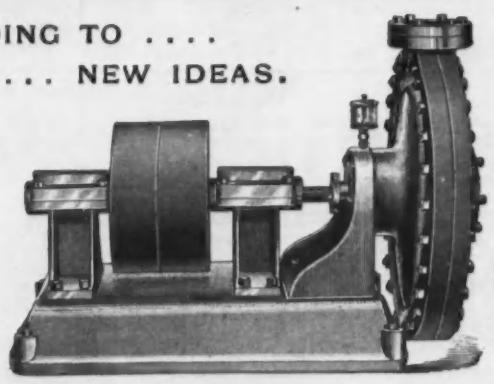

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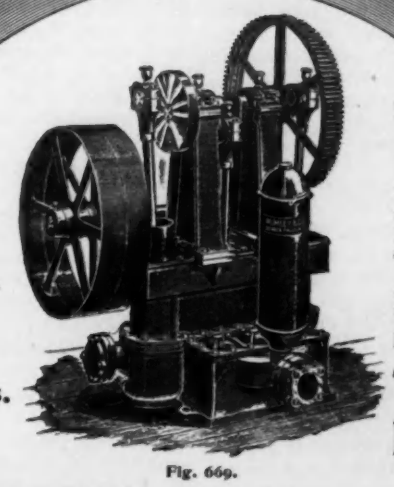

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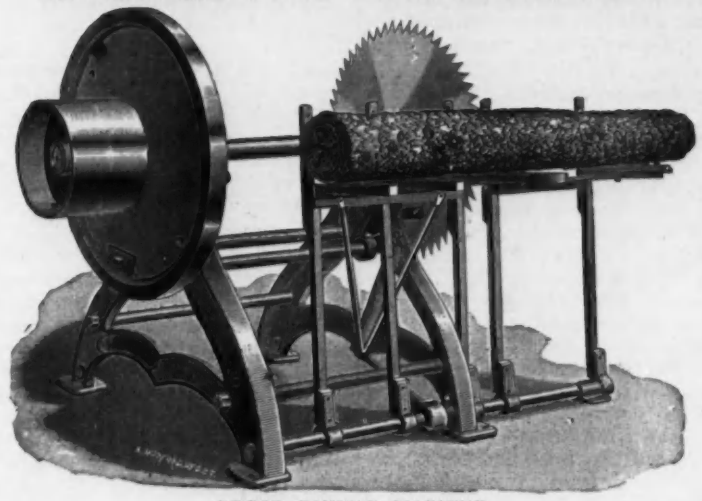

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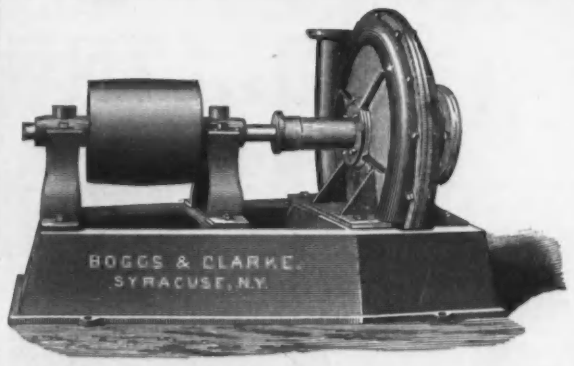

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Manufacturing News.

EASTERN STATES.

The additions to the mill of the Webster & Ring Manufacturing Company, Orono, Me., are about completed, and the new equipment is in place. There are three penstocks, 10 feet in diameter and 306 feet long, for conveying water from the river to the canal, which is in itself an interesting piece of work, being altogether some 630 feet long. It is built in two sections, the first 138 feet and the second 429 feet long, which are joined by three sections of penstock 10 feet long, boarded over to form a platform connecting with the tramway running between the pulp and paper mill. The flume is 50 feet wide over all throughout, and 30 feet wide at the highest water point. Eight gates regulate the supply of power for the grinders, of which there are seven. The flume enters the mill in two sections, in each of which are two sets of three Victor cylinder gate wheels, each set connecting directly by means of long shafts with the grinders. Barber pumps equalize the pressure against every two grinders, and give automatic control of every machine in the room. In the wet machine room are fourteen Success screens and two wet machines. The vats, tanks for supplying water to the pumps and screens, &c., are placed in the basement. Altogether it is said to be one of the most complete and thoroughly equipped mills in the country.

It is reported that South Norwalk, Conn., is to have a new paper mill, to be built by New York capitalists.

MIDDLE STATES.

It is reported that the York Haven Paper Company, York Haven, Pa., has approved plans for another large building which will cover a quarter of an acre and be devoted to paper stiffening for ladies' dresses.

A party of capitalists has been looking over the McRae property at Johnsonville, N. Y., with a view to establishing a paper mill.

The new paper and pulp mill at Newton Falls, N. Y., is to be an industry of the first order. The capacity of the mill will be about 18 tons of paper per diem. It will make its own wood pulp and sulphite fibre, and will manufacture only the higher grades of manilla and tissue manilla. The machine room is 250x60 feet. The plans include a sulphite plant, a ground wood plant, boiler room, storehouses, three large boarding houses, twenty-five dwellings, a schoolhouse, church and railway and other concomitants of a village, the cost of which will exceed $500,000.

The Jefferson Pulp Mill, Black River, N. Y., recently destroyed by fire, is being rebuilt on a larger scale, and will be fitted with new and improved machinery.

The Noble & Johnstone Machine Company, Hoosick Falls, N. Y., has shipped two of its "Monarch" engines to the Jessup & Moore Paper Company, Wilmington, Del. The "Monarch" is something new, and paper manufacturers will do well to inquire into its new features.

The Fuel Economizer Company, Matteawan, N. Y., reports that business is improving and that it is very busy. Among some of the large orders which it has recently shipped are noted the following: The Anaconda Mining Company, Anaconda, Mon., 2,400 horse power; Edison Electric Illuminating Company, Paterson, N. J., 2,000 horse power; Albany Electric Illuminating Company, Albany, N. Y., 600 horse power; Toledo Traction Company, Toledo, Ohio, 2,000 horse power; West End Street Railroad Company, Boston, Mass., 2,000 horse power; McCahan Sugar Refining Company, Philadelphia, Pa., 1,500 horse power (second order); Lewiston Bleachery, Lewiston, Me., 1,200 horse power (second order); the La Crosse Water Works, La Crosse, Wis.; the Nonotuck Silk Company, Florence, Mass., 200 horse power (second order); Dominion Cotton Mills Company, Montreal, Canada, 1,000 horse power (tenth order).

Work has begun on a pulp and paper mill to be erected 7 miles from Watertown, N. Y. The plant when finished will be one of the largest in that section, and will combine the manufacture of pulp and print paper. The amount of capital to be invested is $100,000.

WESTERN STATES.

Work was begun on August 5 on the foundations of the new boiler and engine plant of the De Pere Mills, De Pere, Wis. The boiler house will be 47x60 feet, and the engine room 27x50 feet. About twenty-five men are at work on the improvements.

The paper mill at Delphos, Ohio, which has been shut down for three months, will be started up again with a force of 100 men at increased wages.

Work on the new mill of the Grand Rapids Paper and Pulp Company, at Biron, on the Wisconsin River, is being pushed. About 100 men are employed. Many of the cofferdams are in place, and work has begun on the great dam. Excavations for the flume and tailrace and for the foundations of the mill are well under way. The Green Bay Railway is constructing a 2 mile spur track to the mill.

John F. Clark, Marseilles, Ill., has leased of the receiver for the Columbia Straw Paper Company the former Graham mill and plant at Sears, Ill., and will operate it henceforth. Preparations for the resumption of work at the mill, which has been closed since December last, are now going forward.

The continued opposition which the American Straw Board Company has encountered at Kenton, Ohio, may result in the removal of the plant to Lima. The company desires to remain at Kenton, but the charge that the mill pollutes the Scioto River, and is a nuisance and a menace to health, has caused so much annoyance and litigation that the easier way to escape further trouble seems to be by removing the mill.

The John Hoberg Company, Kaukauna, Wis., had arranged with the people of Green Bay to remove its plant to that place. The ground had been allotted and a part of the brick and other material had been delivered, when the Business Men's Association demanded a bond against liens and for the performance of the contract on the part of the paper mill company. This led to a disagreement, and the proposed removal will not, it is said, be effected.

Negotiations looking to the purchase or lease of the plant of the Moline Paper Company, Moline, Wis., by Wm. A. Gerbrick, of the Patten Paper Company (Limited), Appleton, Wis., are off. Mr. Gerbrick found himself unable to dispose of his Appleton mill, which was one condition of the negotiations, and will not therefore make the intended purchase.

The recent strike at the Cleveland Paper Company's Broadway mill, Cleveland, Ohio, which was not caused by dissatisfaction with wages, but on account of alleged irregularity in pay days, has been amicably settled by the assurance of the company that a regular pay day will be established.

The flume under the mill of the Park Falls Paper and Pulp Company, Park Falls, Wis., gave way on the morning of August 12, and part of the mill fell into the water. The loss is about $10,000.

General Notes.

Bids for furnishing the State of Ohio with paper for one year will be opened at the office of Samuel M. Taylor, Secretary of State, Columbus, Ohio, on September 2.

John N. Peaslee, manager of the Malden Bridge Paper Company, Malden Bridge, N. Y., is showing some novelties in ladies' dress goods, in paper of different colors. These products are light, strong and pliable, and are also adapted for draperies, giving good effects. Mr. Peaslee has a special way of making the goods, the paper pulp being worked on fine net, and can produce them in any weights. The material can be sewed like any ordinary textile.

A judgment for $428,000 has been docketed in the Ulster County surrogate's office against the Sheffield Manufacturing Company, of Saugerties, N. Y., for deficiency.

Crane Brothers, Westfield, Mass., have got out facsimile copies of the diploma awarded to them at the Mid-Winter International Exposition held at San Francisco in 1894. It is neat in design and is printed on a sample of Crane's "Gold Medal Ledger Paper."

The Commonwealth Trust Company has been appointed receiver of Bloomingdale & Co., publishers, 810 Sansom street, Philadelphia, Pa. Action was taken upon the bill in equity filed by Charles Bloomingdale, Jr., one of the partners, against Amos Ellis, Henrietta Z. Ellis and E. St. Elmo Lewis, the other parties interested in the copartnership. Mr. Bloomingdale alleged that Amos Ellis had not paid the attention to the business that was required and had disagreements with members of the firm, and also that his share in the partnership had been levied upon by the sheriff under a judgment and sold to his wife, Henrietta Z. Ellis, thereby terminating the partnership agreement. Application was made to the court for a receiver on last Friday, but the parties did not come to an agreement as to who should act. Saturday morning counsel for all the parties again came into court, and after several persons had been mentioned as receiver the Commonwealth Trust Company was agreed upon.

To remove any misconception which may exist in the trade in regard to the matter, it is in order to say that the mills of the Louis Snider's Sons Company, at Hamilton, Ohio, belong to the creditors of that company and are under the management of Thomas M. Boyd, trustee, and that the Louis Snider Paper Company, Cincinnati, is a separate company and deals in paper, but did not buy the stock nor the mills of the Louis Snider's Sons Company.

Thomas M. Boyd, trustee, offered at public sale on August 10 the four mills of the Louis Snider's Sons Company, Hamilton, Ohio. No bids were received for three of the mills, and Mr. Boyd will ask the court for a second order allowing him to sell them. Six bids were received for the mill known as the Fair Grove Mill, and it was sold to Henry Sohn, of Sohn & Rentschler, for $15,525. The four mills were appraised at $267,000.

In the case of the American Fibre Chamois Company *v.* the John Shillito Company et al., upon the application of the complainant at Cincinnati, Ohio, for an order of dismissal after due consideration and for good cause shown, Judge John W. Barr has ordered that the cause be dismissed, without prejudice, at complainant's cost.

Accidents.

Charles Skinner, Sr., employed at the Tileston & Hollingsworth paper mills, Mattapan, Mass., had his ankle fractured by a box of paper falling on it at the freight house of the New York, New Haven and Hartford Railway on August 6.

Bert Rhines, an employee at the Racquette River Paper Company's mill, Potsdam, N. Y., had the fingers of his right hand drawn in under a 4 ton calender roll on August 5, and suffered a severe injury. The ends of the fingers were crushed, but fortunately the pressure stopped the rolls and prevented the arm from being drawn in.

John Pfeffer, an employee of the Carter Paper Company, Louisville, Ky., fell from a second story window of the company's building on August 7, and sustained serious injuries, which may prove fatal. A painful feature of the case is that the injured man had been out of work several months and had secured a place with the paper company only the day before the accident occurred.

A boiler in the mills of the Fort Orange Paper Company, Castleton, N. Y., burst early in the morning of August 14, killing the night watchman, James Lawton, and scalding the fireman, William Johnson, so badly that he died a few hours later. The building was wrecked and partly burned, and two other boilers were rendered useless. The boilers were inspected and pronounced in good condition less than a month ago. The cause of the explosion has not been determined. Work was delayed about one day. The company has about 35,000,000 postal cards on hand ready for delivery. The loss is covered by insurance.

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Compounds of Alkaline Oxides with Carbonic Acid.

Those which are soluble in water, carbonates of soda, potash and ammonia, give solutions which show an alkaline reaction with litmus. All are decomposed by acids in general with liberation of carbonic acid gas and formation of that salt of the base corresponding to the acid employed.

SODA CRYSTALS.

Symbol, Na_2CO_3, 10 aq.—Valency, II.—Molecular weight, 286.

Carbonates of soda, potash, and ammonia all agree in being soluble in water; their solutions effervesce on the addition of an acid, and all give a white precipitate with solution of calcium chloride. Solution of ammonium carbonate is, however, distinguished from the other two by the strong smell of ammonia developed on the addition of caustic soda solution and warming. Carbonates of soda and potash are distinguished by the flame reaction, best applied after adding a slight excess of hydrochloric acid.

SODA ASH.

Symbol, Na_2CO_3.—Valency, II.—Molcular weight, 106.

Soda ash (Solvay), is nearly pure and nearly anhydrous carbonate of soda. Soda ash may be formed from soda crystals by furnacing, which in this case serves simply to drive off, or dry out, the combined water, 10 aq., of the crystals; conversely, soda crystals are made from ash by simply dissolving and allowing to crystallize.

The amount of "alkali," Na_2O, in soda ash or crystals may be estimated by titration with standard acid.

The proper amount to be weighed out for this purpose so that the number of normal cubic centimetres of acid consumed shall read per cents. of alkali direct is 31 grams. This is to be dissolved, and the solution made to 1,000 c.c.; 100 c.c. of this solution are to be filtered through a dry (wet with the solution, and not with water) filter and titrated, the solution being colored with litmus solution, as under caustic soda, the only additional precaution being to continue the boiling after the addition of acid sufficiently long to make sure that a red color has been obtained which will not turn to blue or violet on longer boiling.

The percentage of carbonate of soda may be calculated to that of alkali by the proportion.

Na_2O Na_2CO_3
62 : 106 = per cent. Na_2O found : x,

and the percentage of soda crystals equivalent to the alkali found by the proportion

Na_2O Na_2CO_3 10 aq.
62 : 286 = $\frac{1}{2}$ Na_2O found : x.

The soda ash of the market is classified as carbonated or caustic ash, according as all the alkali in it exists as carbonate, or part as carbonate and part as caustic soda. The testing of carbonated ash for technical uses is commonly limited to the determination of the total alkali, Na_2O, it contains. Sometimes, however, in old process or "Leblanc" ash an estimation of the sulphate of soda may be useful, since for use in the manufacture of "soda pulp" a small percentage of sulphate of soda in the ash purchased is rather an advantage than otherwise.

The percentage of sulphate of soda present is easily calculated from the percentage of sulphuric anhydride, SO_3, contained.

This latter is determined as follows:

100 c.c. of the solution prepared for titration, filtered as before through a dry filter, are transferred to a beaker, and hydrochloric acid cautiously added as long as each addition produces effervescence. A few drops more are added to render the solution strongly acid, and the solution covered with a glass and heated to boiling. Barium chloride solution is then added so long as it produces a precipitate, and the whole allowed to stand in a warm place until the precipitate has settled and the solution above it becomes clear. The solution is then poured carefully on to a filter, taking care to disturb the precipitate as little as possible while pouring out the liquid. After all the liquid has passed through the filter, the precipitate is transferred to the filter by the aid of a wash bottle filled with hot water, and the filter precipitate thoroughly washed with the water. It is then dried, transferred to the platinum crucible, the filter carefully folded and added, and the whole strongly ignited. The weight of the ignited barium sulphate, $BaSO_4$, multiplied by 0.3433, equals sulphuric anhydride, SO_3, which may then be calculated into per cents. of the original ash.

The equivalent sulphate of soda may be found by the proportion

SO_3 Na_2SO_4
80:142 = % of SO_3 : x % of Na_2SO_4, sulphate of soda,

and the percentage of alkali, Na_2O, which it can furnish on conversion by the proportion,

Na_2SO_4 Na_2O
142 : 62 = % sulphate of soda : x (% of equivalent alkali).

CAUSTIC ASH.

The total alkali, Na_2O, in caustic ash and the sulphate present are to be estimated exactly as in carbonated ash just described. In addition to these determinations, however, a knowledge of the actual caustic alkali present is necessary to fix upon the value of the ash. This is determined as follows:

250 c.c. of the solution prepared for filtration of the total alkali is transferred to a 500 c.c. flask, and the small flask well rinsed into the larger, using as little water as practicable for the purpose. A strong solution of barium chloride is then added, with shaking so long as it produces a precipitate. A little more of the barium chloride is added, and the flask filled to the mark with water and well shaken.

The flask is corked and allowed to rest until the white precipitate has settled and the solution above has become clear; 100 c.c. of this solution are then filtered through a dry filter, the funnel being kept covered with a glass during the filtration. This solution (100 c.c.) is then transferred to a beaker or dish, and litmus added and titrated with standard acid.

It is not necessary to heat the solution during this titration. The number of normal cubic centimetres of acid employed multiplied by two, since the 100 c. c. of the last solution is equal to only 50 c. c. of the original solution prepared, gives the percentage of alkali, Na_2O, existing as caustic soda, NaHO, in the sample.

BLACK ASH.

This is a soda ash containing a greater or less amount of finely divided carbon, from which it derives its black or dark gray color. It also contains ordinarily small amounts of sulphide of soda, which is formed from any sulphate which may have been present before furnacing the latter, being reduced by the carbon or organic matter at the high temperature of the furnace.

The valuation of black ash for technical purposes is in most cases limited to a determination of its total alkaline strength by titration, as under soda ash. This would include the alkali, Na_2O, present as sulphide as well as that present as actual carbonate. In testing a well-burned black ash no variation will be found to be necessary from the method given above for the titration of soda ash, as the 100 c.c. of liquor filtered out for the test will be found to be practically colorless. If, however, the sample of black ash has not been thoroughly burned, the filtered solution may be quite dark or even black in color from partially carbonized matter dissolved.

In this case the simplest way out of the difficulty, perhaps, is to throw away the solution already prepared and weigh out a new lot of 31 grams. This is then transferred to a platinum dish (best to the evaporating dish) and thoroughly ignited over the lamp. The whole is then transferred to the litre flask, the dish well rinsed in, and after the ash is dissolved made to the mark as before. If the ignition has been well performed a sufficient colorless solution will be obtained on filtering. The complete analysis of black ash is a problem of so complicated a nature as to be best performed by the professional chemist. Not infrequently, however, such an analysis may serve to point out an erroneous method of practice, or an avoidable waste in the manufacture of which this black ash is a bye-product.—*Chemistry of Paper Making.*

Electrolytic Bleaching.

Two large electrolytic works have been started in the vicinity of the lignite deposits at Bitterfeld. One of these, belonging to a Berlin company, is said to have an output of 6,000 tons of bleach per annum, the cost of the production of which is reduced by the caustic obtained as a by-product. The other works, which were started in 1890, were founded by the Chemischefabrik Griesheim, and produce caustic potash, caustic soda and chlorine. C. Kellner's process for the production of caustic soda and bleach is working at Clifton (Lancashire), and at Hallein, and has proved to be so successful that it is intended to establish larger works at the latter place to utilize 2,500 e of the available water power, while at Borregaard, in Norway, water power equal to 5,000 e is to be used for the same purpose.

Electrolytic bleaching processes are coming more to the front in place of bleaching powder. In a sulphite mill at Stjernfors, Sweden, which has been running for four years, 1,750 kilos pulp are bleached daily by Hermite's process. The results are said to be satisfactory. At Hallein, near Salzburg, C. Kellner's electrolytic bleaching process is in works where they turn out daily 20,000 kilos of bleached pulp. According to Jebauer-Knofler, the process, besides being 45 per cent. cheaper than bleaching with chloride of lime, offers several technical advantages.—*The Paper Maker, London.*

If the guides on an engine are made separate from the frame they may be taken off and planed when they need it; but if they are cast with the frame this cannot be done.

Burnishing Journals.

One of the most serious of the possibilities that constantly confront the engineer is that of the heating of the journals of his engine, shafting or driven machinery. Probably the majority of "shutdowns" that occur during working hours in our factories is traceable to some troublesome journal. There is certainly nothing more exasperating to the engineer than the necessity of constantly watching and "doctoring" some particular journal, which, in spite of his patient efforts, still persists in heating.

It is of course evident that this heating is due to excessive friction, and its source should not be hard to find. If the journal is not under excessive strain, considering its size, is in perfect alignment, and well lubricated, the reason of the heating is evidently in the quality of the rubbing surfaces.

The boxes may be made of or lined with some so-called anti-friction metal, which takes an excellent polish and runs well with a finely finished journal. It is therefore highly important that the journals be provided with as smooth and hard a surface as is possible, without sacrificing other desirable qualities, or incurring too great expense.

The Missouri Pacific Railway has recently tried the experiment of burnishing the journals of its car axles, and the results have been so highly satisfactory that we venture to predict that this method of finishing will be widely used for the journals of other machinery.

The tool used consists chiefly of a highly polished and tempered steel wheel or roller, having a face a little more than a quarter of an inch wide, and a diameter somewhat less than 4 inches. The bearings in which it revolves are attached to an iron bar that is shaped to be held in the tool post of the lathe, thus making the burnishing operation easy and rapid.

We have not had the opportunity to examine one of these journals, but the results may be imagined by anyone familiar with such matters. We understand that it is entirely satisfactory, not only giving a perfectly smooth surface, but considerably increasing the density of the surface metal.

This would seem to give the best possible bearing surface, and so greatly reduce the possibility to heat and cut. In the writer's experience with heated bearings he has seldom found it possible to stop the trouble by the most careful scraping of the box, unless the shaft also received its share of attention. We believe that the method of finishing journals as indicated above will go far to prevent trouble in this direction. —*Industrial Record.*

Cylinder Jackets.

It is hard to make some men understand why it is not good practice to jacket with exhaust steam. "The exhaust," they say, "is over 200°, the air is only 60°. Won't there be less radiation from the cylinder into the hot steam than into the cooler atmosphere?"

The trouble is that with an exhaust jacket you would have a current of steam much cooler than the temperature at which the cylinder must be kept, sweeping around the cylinder all the time and carrying off the heat as fast as it is radiated. If the cylinder were entirely bare in a closed room where there were no air currents, it would quickly heat up a film of air to nearly its own temperature, and if we could keep this air from moving away from the cylinder, and letting cooler air into its place, we should greatly reduce radiation. This is the reason you are cooler in a breeze than in a calm, the reason you fan away the heated air from your face to let air which has not been heated approach.

The idea is that there is less heat taken away by a medium which stays near the radiating body than by one which passes along, carrying away the heat it has absorbed and making room for the approach of more of the same heat absorbing medium. A thin covering of cloth ministers to the comfort of our bodies simply by retaining in contact with them the air which they have already heated. The "cozy" or loose woolen cover which is thrown over the teapot to keep it warm depends on the same principle for its usefulness. When a body is to be kept hot keep currents of cooler matter away from it.

There is another reason why exhaust steam is particularly bad for jacketing purposes. If you stand in a breeze, while wet, you will be chilly, even though the breeze is hot. The evaporation of the film of water from your body requires so much heat that its rapid outflow produces an increased sense of cold. It is to this fact that the coolness produced by ether, alcohol, &c., is due. Now, exhaust steam is apt to be moist, and when it comes in contact with the heated wall of the cylinder the moisture in it is vaporized with the same chilling effect that ether has in evaporating from your hand. As it takes more heat to evaporate water than any other substance, it is the worst thing that we can have around a surface that we want to keep hot. A stream of such moisture as the exhaust from an engine would carry, swept by the surface to be protected at the rate of 6,000 feet per minute, would be one of the best refrigerators we could devise, notwithstanding its 200 and odd degrees of temperature.—*Power.*

Friction.

It seems to me that the word friction is abused, for it is often used to mean different things. It has been proved that the coefficient of friction to total pressure is practically independent of area of surface and velocity. The self-styled practical man is apt to say that the statement may be true theoretically, but not true in practice. The fact is that the truth of the statement depends upon the correct and careful observation of practice and experiment. Fine experiments have shown that said coefficient does change slightly with the area and velocity, but so little that it might not be observed in practice.

A practical man once told me that friction increased very rapidly with the velocity. Now that is true if when he says friction he means the work or power expended in a given time in overcoming the frictional resistance, and in practice it may be said that the above described lost work increased directly with the velocity as well as pressure, but theoretically it is not to quite that extent, because at high velocity the coefficient is slightly less than at slow velocity; but here I must call your attention to the fact I am assuming other things to be equal. It sometimes happens, indeed very often, that the character of the surface becomes changed, and therefore the lost work may be greater at excessive velocity, and a larger coefficient should have been used than would be necessary with a moderate velocity.

In a bearing, if the amount of the bearing surface is not great enough to withstand the pressure, *i. e.*, if the pressure per square inch is too great for that kind of a bearing, abrasion will take place which will soon destroy the character of the bearing, and a different coefficient is needed for the different character of surface. In a lubricated bearing too great a pressure per square inch will force the oil from where it is needed most, and again a different coefficient is needed. One remedy is to increase the length of the bearing, and so bring the pressure per square inch within safe limits. The lost work of friction goes off in heat, and the greater the velocity and the greater the frictional resistance, the greater is the amount of heat which must be carried off by radiation, &c.; now, if this is not carried off fast enough it will be piled up, so to speak, in sensible heat, and the shaft fills the box more completely, and if it was close before it will be tight now, and therefore the pressure is increased, and it can only free itself by abrasion.

A machinist said to me that a pin outside connected would be better than an eccentric, because the velocity of the rubbing surface and area of surface would each be less, and therefore the friction less. I wanted to use the pin, so did not argue the point, yet I had different reasons. He wanted to have a pin instead of eccentric, partly because the surface was less, and yet he knew that increasing the length of a bearing was a good thing, but he never thought of any inconsistency there. The frictional resistance to the movement of 1 unit of space would be practically the same in either case, but in one revolution the space rubbed over on the eccentric would be longer than that of the pin, therefore the lost work due to velocity would be in proportion to circumference of rubbing surface; furthermore, the frictional resistance of the eccentric acts through a longer lever arm than does that of the pin, although the throw of each is the same; the lever arm in which the frictional resistance acts is half the diameter of the pin, or half the diameter of the eccentric disk.

Other things remaining equal, the lost work would be in proportion to the length of the lever arm. When we increase the length of bearing, we reduce the pressure per square inch, because the total pressure remains the same, and our coefficient may be less; while increasing the diameter will not only reduce the pressure per square inch, but also increase the lever arm and velocity. Let the draughtsman who has dividers having a handle on top notice that he can hold one leg only, and move the handle without disturbing the setting of the legs. The pressure is obtained by screwing in the little pins on either side of the joint, and is therefore equal for each surface, but the power required to overcome the frictional resistance is in proportion to the length of lever arm, which in this case is two-thirds out from the centre of same, as in a step bearing.

The coefficient of friction to pressure, for a hard as well as other surfaces, depends only upon the character of the surface, but the frictional resistance increases with, though not in proportion to, the arc of contact. I have seen very heavy loads hoisted with a wooden drum by simply wrapping the rope a few turns around the drum and the end of the rope itself, there being no other fastening. I have had charge of work myself where I used a drum of wood with a concave surface like a capstan. I would make four or five turns first, then give the slack end to a laborer to hold while a couple more worked on the cranks. As the drum was revolved, the rope would be taken up on the load end and given out to the laborer who held the slack, and pulled hard enough to maintain the initial tension; the arc of contact did the rest. As the load went up and the rope traveled toward the end of the drum it got to the high part and slipped toward the centre. The office of the man with the slack end was similar to one who, when a gang of men are pulling with block and falls, takes a bight around a tree to hold while the men are taking a new hold. If he cannot hold it with one turn he takes another. I think it will plainly be seen that the arc of contact is important when a great difference of arc is under consideration.

Rankine in "Machinery and Millwork" has worked this out and fortunately the result is in plain figures which will apply to all similar cases. I have abstracted from his result the following formulæ, which apply to ordinary belts.

Let the sum of the pulls of both driving and slack sides divided by 2 be called the mean tension or

$$\frac{T_1 + T_2}{2} = M$$

Let the force to be transmitted = R; then the ratio of

$$M \text{ to } R = \frac{M}{R},$$

which call r. Let the number of turns or fractions of turns = n.

Let the coefficient of friction = f

$$r = \frac{10^{2.7288fn} + 1}{2\,(10^{2.7288fn} - 1)}$$

i. e., multiply log of 10 by 2.7288 and by the value f times n. Find the corresponding number and add 1 for the numerator; use same number minus 1 and multiply by 2 for denominator,

$$T_1 + T_2 = 2\,Rr, \frac{T_1 + T_2}{2r} = R, T_1 = T_2 + R$$

When a common belt is at rest on its pulleys it has a certain initial tension which of course varies in different belts, depending upon how tight it was put on, and how much it has stretched since. A practical limit is found for such variation in either direction. When force is applied to one pulley for the purpose of turning the other, then one side becomes tighter and the other slacker, the tension is increased on the tight side and just as much diminished on the slack side, and the mean tension remains the same as the initial tension. The force which can be transmitted is the difference in tension and this force is R or $T_1 - T_2$ or

$$\frac{T_1 + T_2}{2r}$$

and this in case of a common belt =

$$\frac{2 \text{ times initial tension}}{2r}$$

In the case of a rope drive where a tension carriage was used, the tension carriage maintains the same tension on the slack side as the initial tension, and then

$$\frac{T_2 + T_2}{2}$$

is greater than the initial tension.

The reason for making a belt wide is mainly on account of strength. The conditions might be such that a belt might not slip, but would first tear itself apart to reduce the tension and then slip. The above formulæ judiciously used will determine the holding force of a band brake on a hoisting machine. It should be noted that belts are run under such varying conditions that the value of the coefficient f will vary greatly, not merely depending upon the kind of surface, but the matter of water, grease, temperature, dust, &c., will affect it. With ordinary belts the arc of contact does not vary far from 180°; therefore it will be seen that inasmuch as the transmitting force is only the difference of tension and the pressure on the bearing is the sum of the tensions of both sides, it is quite different from the Evans friction cone, where the pressure on the bearing is the force with which one cone is pressed against the other, and the loose belt between the two is employed because the coefficient of leather on iron is greater than iron to iron; also by having the belt between the two lines it can be moved laterally to change speed.—*Boylston, in Power.*

In case of accident to the feed pump or any part of the boiler, which makes it necessary to reduce the temperature at once, it is much better to cover the fire with damp ashes or fresh coal rather than to attempt to draw it, for when a fire is disturbed it gives out an intense heat for a few minutes.

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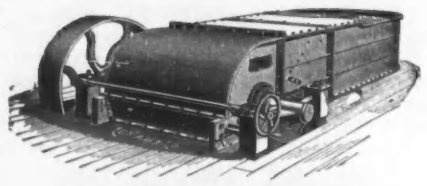

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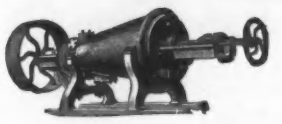

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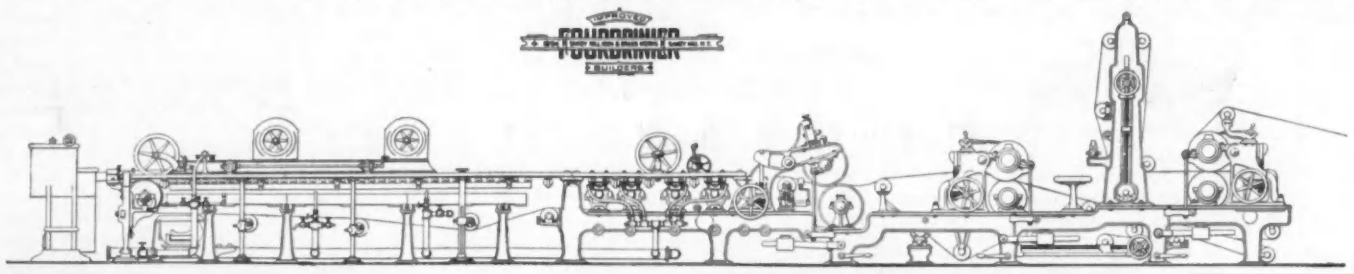

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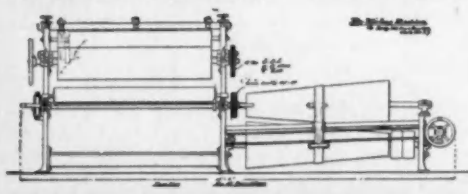

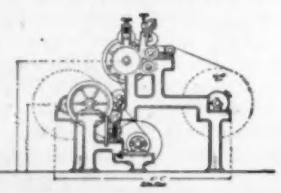

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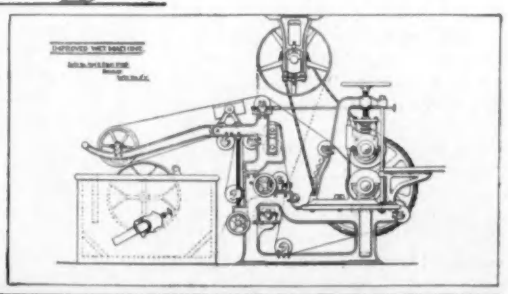

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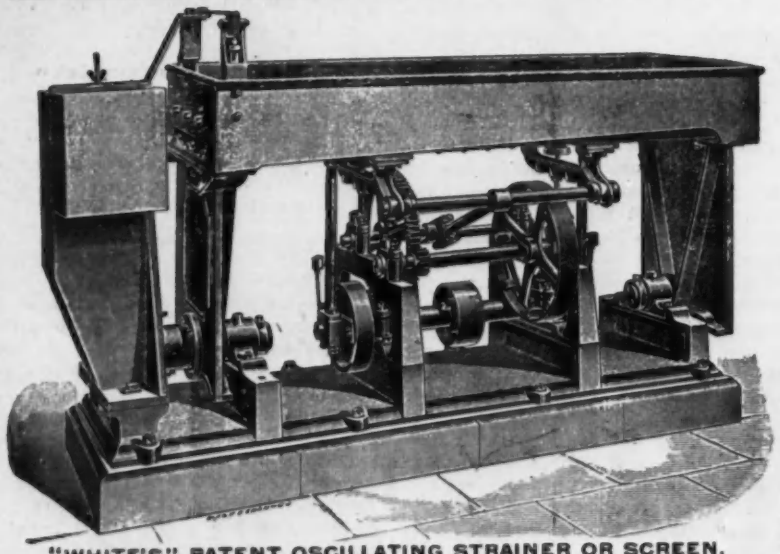

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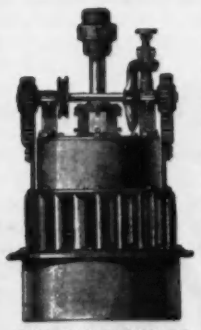

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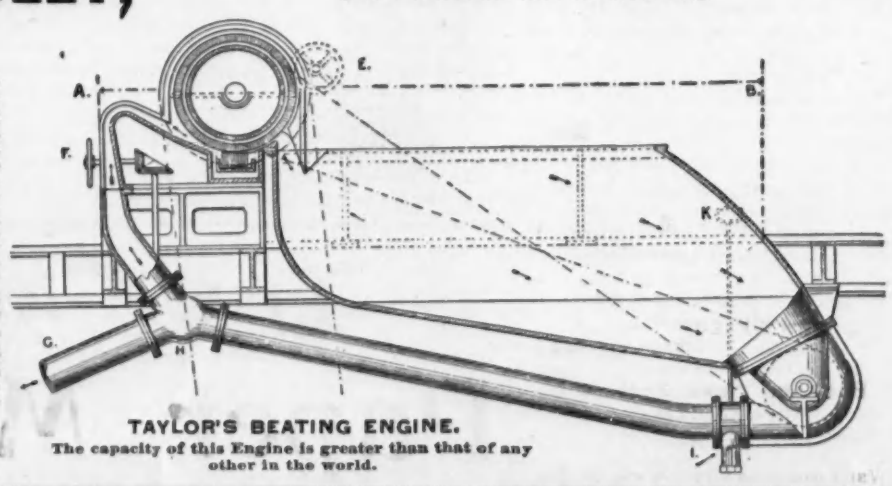

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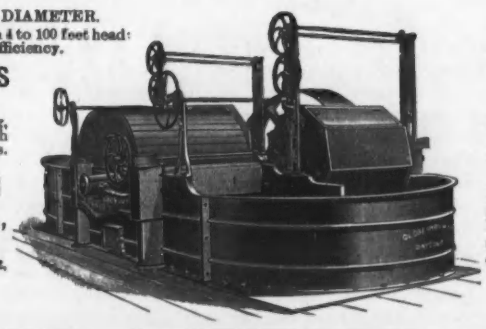

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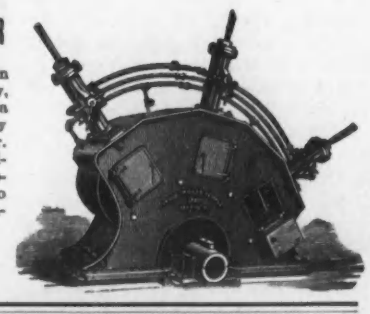

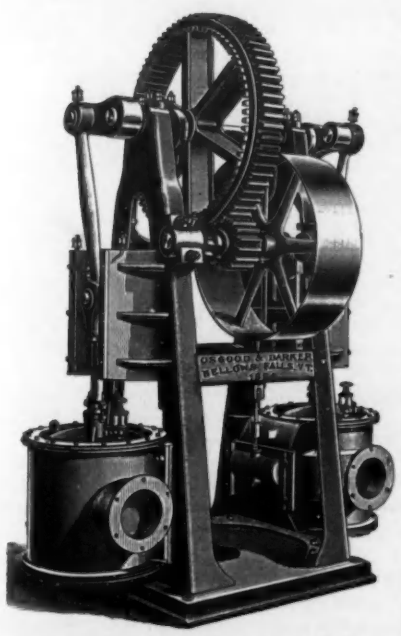

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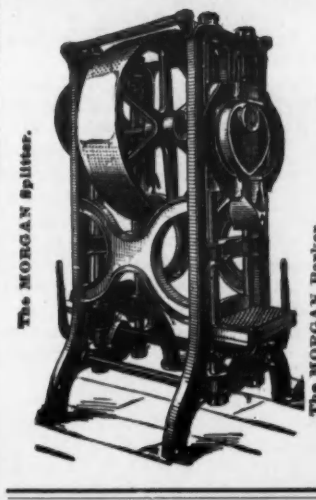

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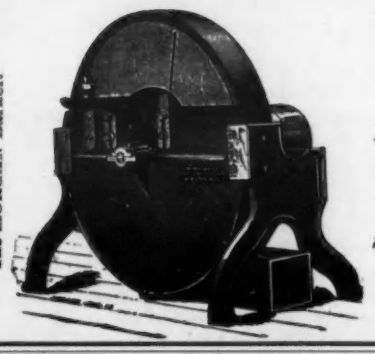

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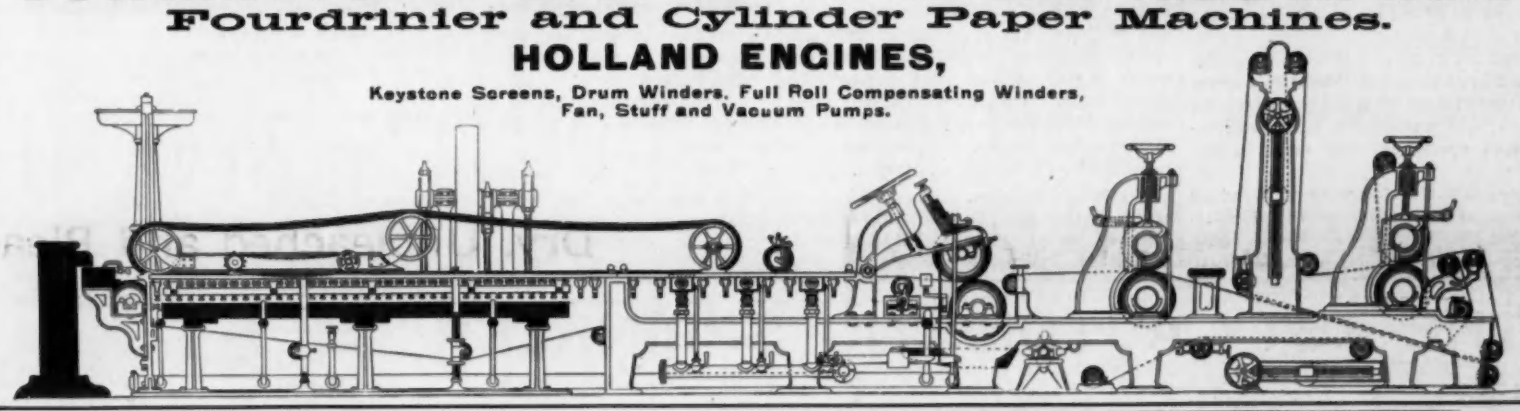

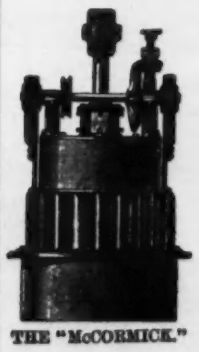

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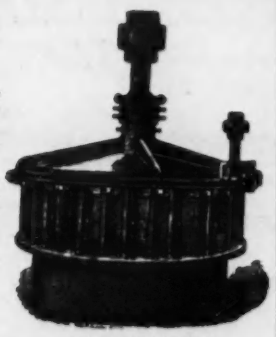

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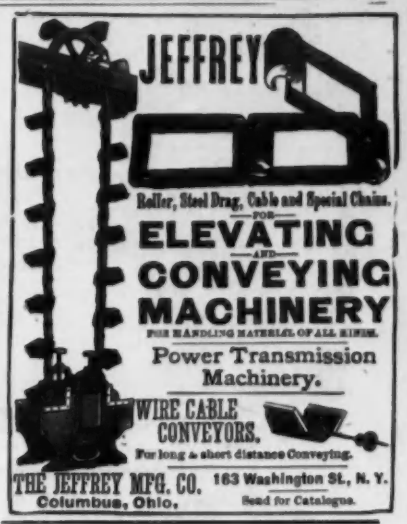

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Gas versus Electricity.

The success, although somewhat limited from a scientific point of view when its ultimate possibilities are taken into consideration, which has so far attended the introduction and application of electricity as a means of illumination and for purposes of motive power, has greatly stimulated gas engineers and others, and the results which have in recent years attended their labors in certain directions augur well for the future.

Artificial or coal gas was first made practically useful as an illuminant by Robert Murdoch in 1798, when he partially lighted up by its means the famous workshop of Boulton & Watt, at Soho, near Birmingham, Its extension, owing to the many improvements effected in the process of manufacture, was rapid, so that in less than a quarter of a century it was almost universally adopted in large cities. For many years little was, however, done on new lines, the improvements effected having generally in view more economical production and a better light, the first of these objects being attained principally by the disposal of the various by-products or residuals, and more perfected appliances, while a purer quality of gas and improved burners largely influenced the latter.

It is within a comparatively recent period that uses for artificial gas other than for illumination have been sought for. In 1860 Lenoir introduced his gas engine, of which several hundred were sold in France, Germany and England during the following five years, but persistent attempts made to introduce it into this country met with no success whatever. A few years later appeared the Langen & Otto gas engine, which, in spite of its defects, was well received in Europe, factories being established in England, France, Germany and Austria, whose individual output was about 1,000 a year. Like its predecessor, it also failed to obtain a footing in this country, owing in a very great measure to the price of gas being here from $2 to $4, as against $1 on the other side of the Atlantic.

Further improvements led to the bringing out in 1876 of the Otto "Silent" engine, which immediately obtained great favor in England, and was finally, after overcoming much opposition, introduced in this country.

A few years later electricity appeared on the scene as a competitor with gas for illuminating purposes, first dazzling a wondering public with the intense brilliancy of the arc light, and later calling forth their admiration of the possibilities of the subdued effects of the incandescent lamp. Then came the wonderful adaptation of electricity to all kinds of power purposes, traction, hoisting, machine and tool driving, pumping, transmission of power, &c., all of which became stubborn facts for the gas men, thanks to the invention of the electric motor. They were now thoroughly aroused, and fear for the possible extinction of their lucrative industry filled the breasts of all interested therein. But competition is productive of good to the public. So in this case the fear of what might result from the introduction of this new illuminator and motive power led the gas manufacturers and engineers to bestir themselves, and not only to endeavor to give their customers greater satisfaction as far as the price and quality of the gas were concerned, but also to seek new fields for the utilization of their products.

Their attention was under such circumstances naturally drawn to the gas engine, and they with a number of machinists, realizing that the time had at length come when there might be some possibility of their making a commercial success of the new motor, devoted both time and energy to it, seeking to improve its construction, diminish its consumption of gas and reduce its cost. The lead was taken in this new move by the Otto, of which over 40,000 have already been sold, varying from ½ to 120 horse power. As an indication of the enormous progress made in the principle of construction, it may be mentioned that the Lenoir thirty-five years ago consumed from 90 to 105 cubic feet of gas per horse power per hour, the Langen & Otto about 44, while the present Otto with several others are guaranteed not to consume more than 15 cubic feet, thus making this motor not only a convenient and safe one, but also an advantageous one as far as working expenses are concerned, and that despite its comparatively high first cost. Then came the Welsbach burner, which with about 3 cubic feet of gas produces an immensely superior and brighter light than the common gas burner consuming 4 cubic feet. This lamp, which is now largely used for lighting stores, halls, large dwellings and even streets, is increasing rapidly in public estimation and causing considerable uneasiness to many electric lighting companies.

A wide field remains, however, where gas is still unused here, and the gas manufacturer and engine builder would do well to consider it seriously, as there appears to be every prospect that a rich harvest could be derived from it. Up to the present time horse power used for the traction of our street cars has been replaced by the cable and the trolley, each of which has developed great inconveniences, resulting, unfortunately, in the case of the latter especially, in serious loss of life. This loss might undoubtedly in many cases be diminished by greater care on the part of the public, more stringent regulations as to speed, right of way, &c., but on the other hand it has also been frequently urged in extenuation that the cars so propelled were at times beyond control.

Numerous and continuous experiments have been made in Germany and England with street cars propelled by gas motors, the results of which have been found highly satisfactory. The gas is stored in three tanks under a pressure of six atmospheres, their combined capacity being about 33.5 cubic feet, or about 200 cubic feet at atmospheric pressure. The consumption of gas is about 18.8 cubic feet per car mile, so that the supply is ample for a continuous run of 10 miles, and as the refilling of the tanks occupies less than a minute any delay on that account is inappreciable. The motors used are from 8 to 15 horse power, while special ones of 20 horse power are being at present constructed. The speed attained is 8 to 12 miles, and it is under perfect control and may be reduced as found necessary. Other great merits put forth are that the car can be stopped when running at full speed within its own length, it starts without noise or shock, is free from heat and smell, and is safely handled in crowded thoroughfares. Such advantages ought to commend such a system to our long suffering city populations.

The following figures have been published as the results of practical tests made at Dresden, where these cars have been running regularly for the last nine months, and giving every satisfaction.

Construction for a 5 mile double track road, twenty cars, all wires, horses, motors and other equipments included:

By gas motor system cost			$28,500	per	mile.
" electrical	"	"	36,200	"	"
" horse car	"	"	26,700	"	"

The net operating expenses are:

By gas motor system			6.0 cents	per	mile.
" electrical	"		8.0	"	"
" horse car	"		10.0	"	"

It is also stated that during the severe weather which was almost universal last winter the gas-driven street railways in Germany maintained an uninterrupted service, while electric cars were frequently stalled on account of the snow, and the service was often subject to suspensions and cessations. Such results seem to point to the desirability of thorough and comprehensive trials being made of the system in this country, so that, if for no other reason, the competition may determine the trolley companies to observe greater care in the regulation of their traffic, and also adopt some other method of carrying the current in place of the present dangerous overhead network of electric wires.—*Wm. Cox, in American Machinist.*

When to Develop a Water Power.

Persons owning desirable water powers need not be afraid to develop them, if coal costs over $2 per ton at the site; but in laying them out they should be governed by the minimum reliable flow of the stream, plus the amount that can be saved by night storage if it is only to be used for power by day, or for lighting by night, as such storage will double it. You may calculate on getting 80 per cent. net effect with either of half a dozen of the best turbines, say the Geyelin, Hercules, Humphrey, Hunt, Leffel, Risdon, Swain or Victor, all of which have shown higher records than 80 per cent. With this effect you can get a horse power net for each cubic foot of water per second on an 11 foot fall. Do not, however, as the writer has seen done, plant a mill requiring 300 horse power on a stream which would furnish only 100 horse power for six months in the year, and have to haul coal from the railroad 3 or 4 miles distant to supply steam for the balance.

So much for the cost of water power. For its value I return to the old rule. It is worth in any place, if it should be needed at all, what it will cost to replace it by steam, and for this find the cost of coal per ton delivered at your boilers.

For triple compound engines allow 1.50 pounds of coal of best quality per hour per horse power, or to be safe, say 1.75 pounds; for double compound, 2 to 2½ pounds; for single condensing, 2½ to 3 pounds, or high pressure, 3 to 3½ pounds, according to size of engine.

To the cost of fuel add wages of engineer and fireman, cost of oil, and 12½ per cent. on the cost of the plant for sinking fund, for renewal, interest, insurance and taxes, repairs and supplies, and you get pretty close to the cost of a horse power of steam as representing the only known measure of the value of a horse power of water.—*Cassier's Magazine.*

Electricity Direct from Coal.

A new electric battery of a very interesting sort has been devised by Dr. Borchers, of Driesburg, in Germany; its chemical peculiarity being that the current is generated, not by the solution of metal, but by the conversion of hydro-carbons and carbonic oxide into carbonic acid. As this is practically the same reaction that takes place in burning coal, the useful energy derived from the oxidation of a given weight of carbon in the battery can be directly compared with the effect of burning coals or coal gas to drive a steam engine, or in a gas engine.

It is well known that a steam engine utilizes about 12 per cent. under the most favorable circumstances of the theoretical energy produced by the oxidation in the boiler furnaces of the coal used to drive it; and a good gas engine utilizes about 20 per cent., while Borcher's battery is said to have delivered at times in available form 38 per cent. of the energy liberated by the consumption of carbon in it, and at no time to have delivered less than 26 per cent. It would be curious if the oxidation of carbon in the wet way in a battery should give more than three times as much power per pound of coal consumed as burning it in a boiler furnace; but this is just what is claimed for the new battery, and it is obvious that if the theory is sustained it will not be long before steam boilers are abandoned, and power derived entirely from batteries and distributed through wires and electric motors to persons desiring to use it.

Always have a sight feed oiler located where it will drop oil on the piston rod as it travels back and forth, for it lessens friction, saves wear on the rod, and makes the packing last much longer. This applies to both fibrous and metallic piston rod packing.

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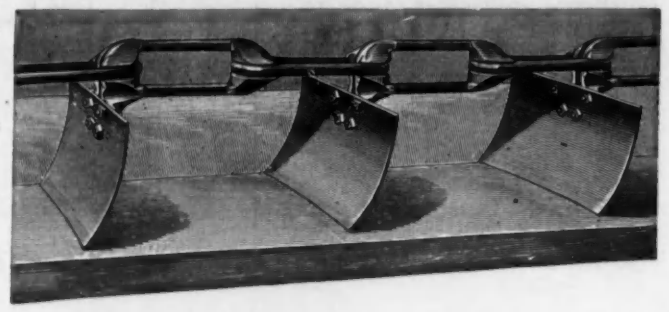

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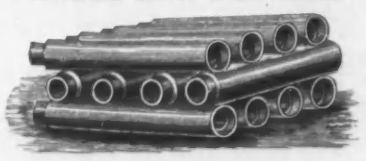

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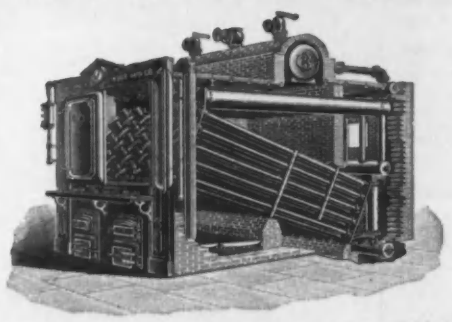

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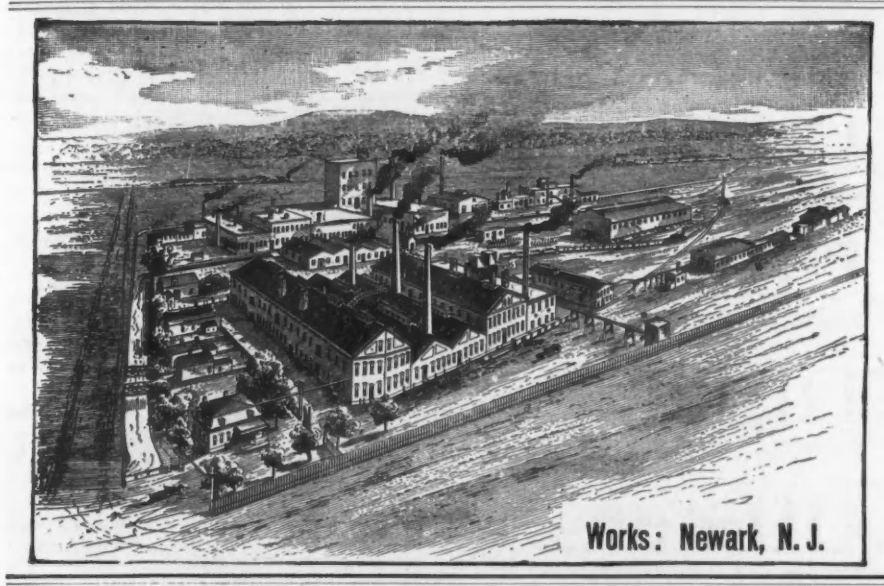
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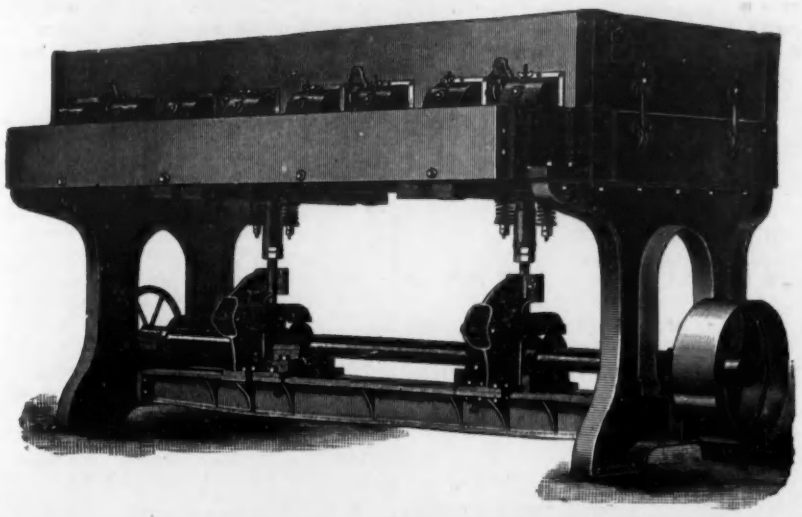

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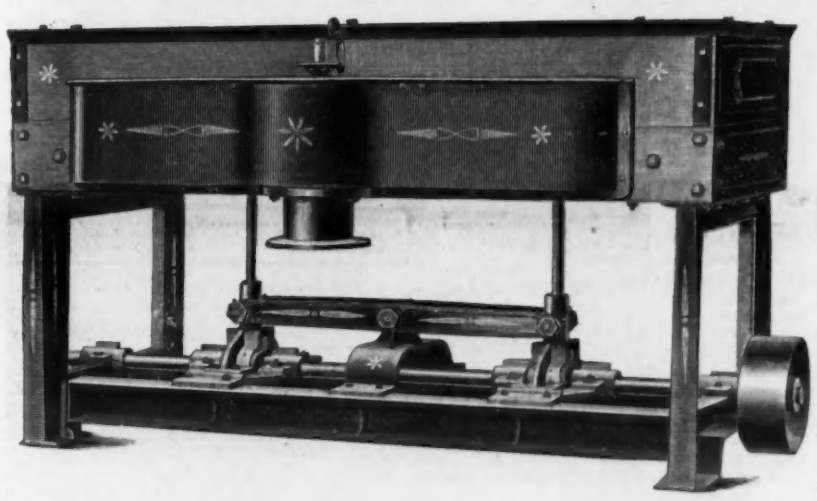

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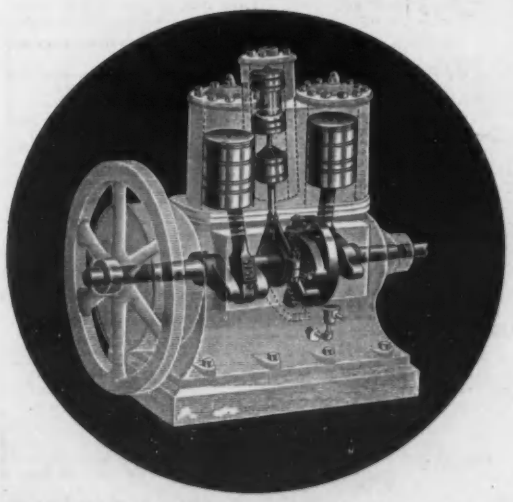

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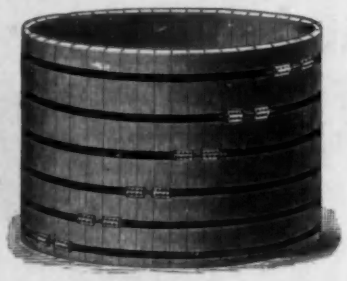

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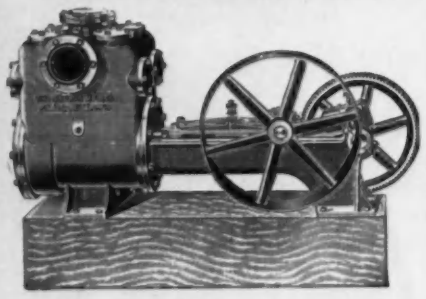

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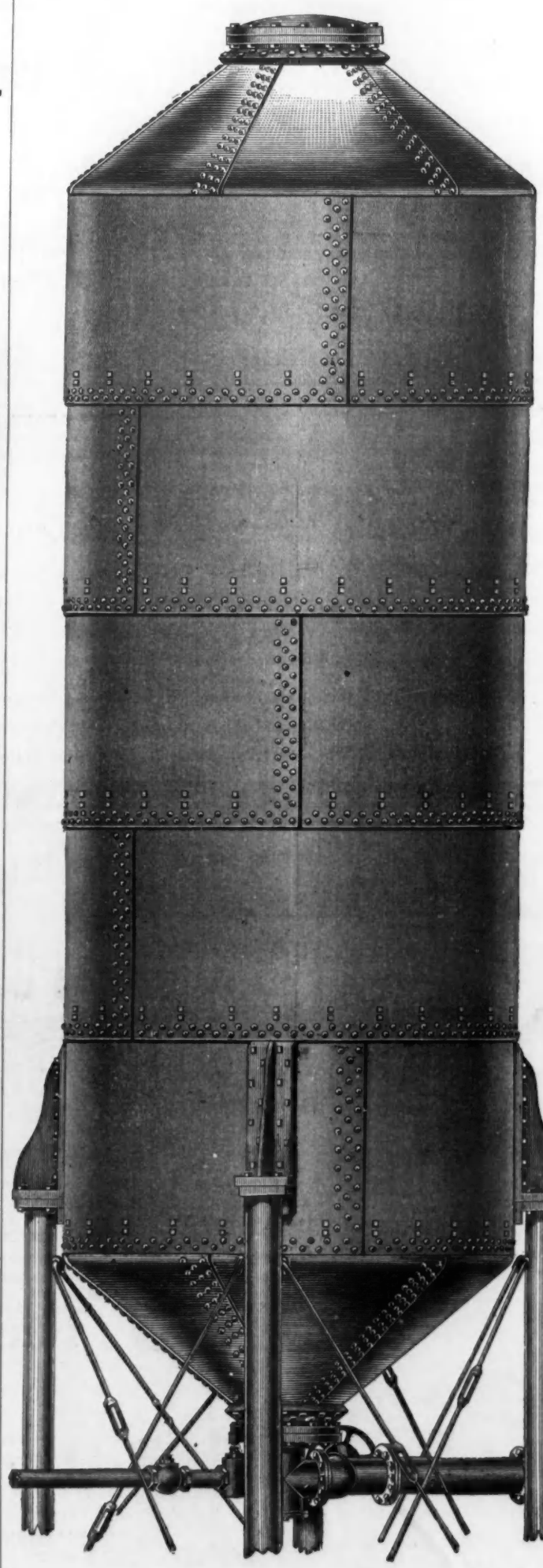

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"How about the Captain?"

"Well, he's all right; no serious objection to the Captain."

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"Fair—the Colonel is only fair."

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"I would rather not discuss the Major, stranger; but I'll tell you I ain't looking 'round for any Brigadier Generals."

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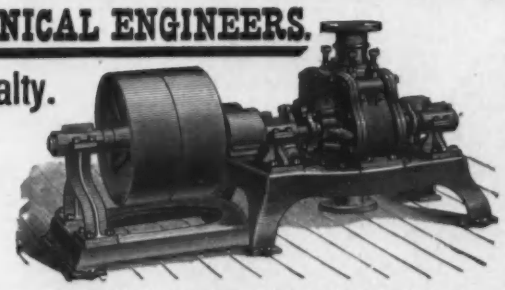

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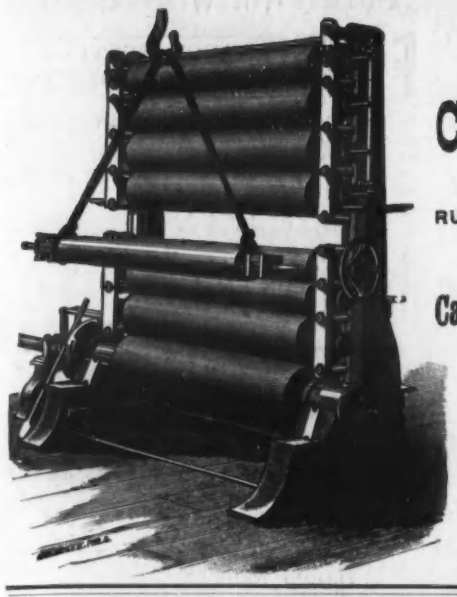

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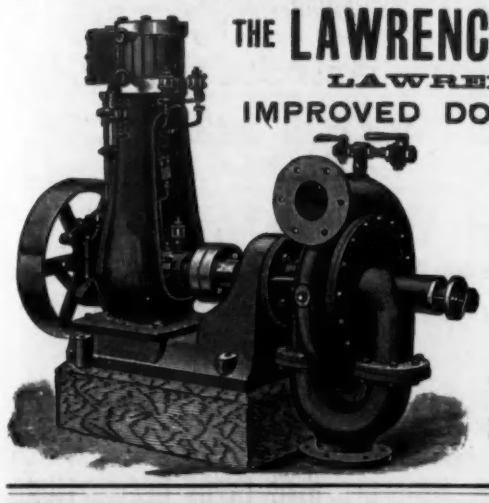

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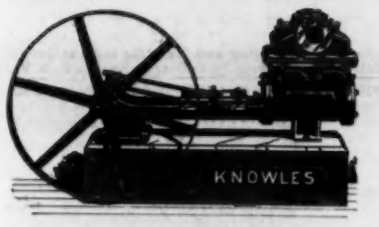

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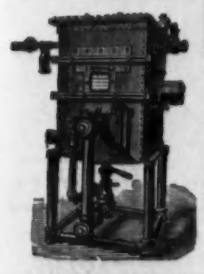

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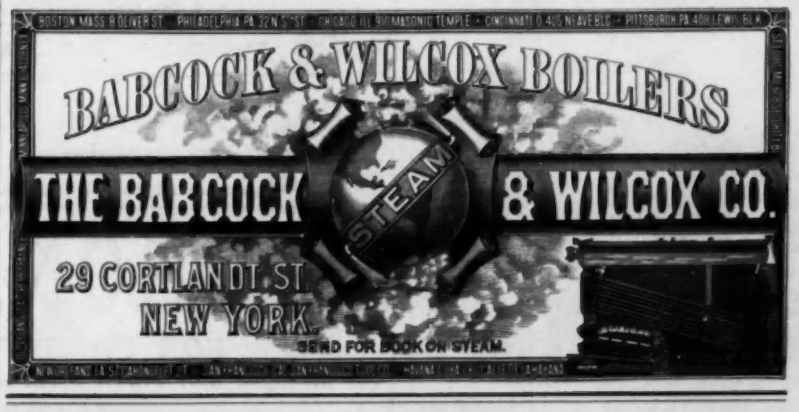
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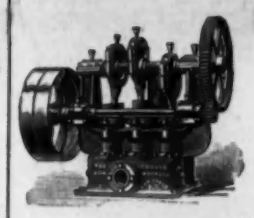

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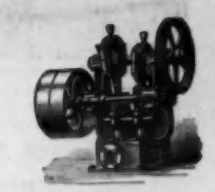

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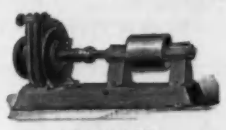

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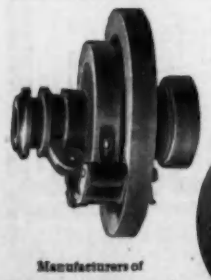

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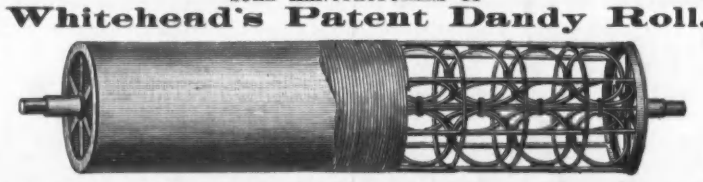

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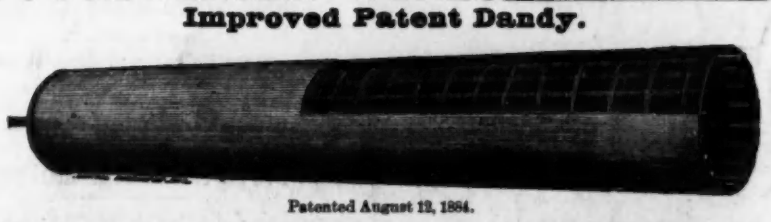

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